THE

FARMER'S MAGAZINE:

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PART I.

ORIGINAL COMMUNICATIONS.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On the Value of Turnips, Roota Baga, Potatoes, Yams, &c. as Substitutes for Grain in the feeding of Horses, &c.

GENTLEMEN,

THE great rise upon the rent of land, that has lately taken place in North Britain, while it serves as a stimulus to exertion in the way of improvement, ought at the same time to suggest to the farmer the means of conducting his operations in the cheapest and most economical manner. Under the present mode of farm-management, upwards of two-fifths of the produce, even of the best farms, is required for the farmer's own purposes, and of that quantity a very considerable proportion is used by the horses; the remaining three-fifths being all he has to depend upon for the payment of his rent, maintenance of his family, interest of capital, and numerous casualties; a proportion little more than adequate to these purposes, even in good years, and in the most favoured situations, and certainly very unequal to them in bad seasons, of which the experience of the two last, which it is to be hoped will not soon be equalled in Britain, is a convincing

proof; for, notwithstanding the uncommon high price of grain, many farmers, in place of being benefited thereby, were, in consequence of the deficiency of their crops, considerable losers, especially upon that of 1799, and even upon that of 1800. The numbers who have benefited by the high prices, are few, compared with those who have lost by the deficiency of the crop, and the great additional rent paid to the landlord, in cases where the whole, or a part, was payable in grain.

As the support of horses, and other stock, upon a farm, constitutes so material a part of the expence attending agricultural operations, it is a matter deserving the most serious attention, whether, without diminishing the strength, or lessening the value of the animals, they can be fed at a cheaper rate than they are at present.

Necessity, we are told, is at once the parent of industry and economy. Upon many occasions it has been so, both with nations and individuals, as we meet with numerous instances of men who formerly had been dissipated and thoughtless in the extreme, becoming careful and saving, from the pressure of misfortunes; and of nations, where profusion and expence had reached their ultimate height, becoming frugal and economical, from severe public calamities.

The situation of Britain, for the last three years, furnishes a strong proof of the truth of this observation; persons of all ranks having been under the necessity of practising an economy, which, in the more fortunate periods of our history, they would not have thought of, and which, it is to be hoped, will not forsake them with an alteration of times. Of these plans of economy, perhaps none is more important, or promises more lasting advantages to the country, than the methods that have lately been fallen upon to subsist the horses and working stock, upon articles that admit of being generally introduced as substitutes for grain, by which the farmers in those districts where the practice has been adopted, have been enabled, with profit to themselves, to bring to market a considerable quantity of grain, which, under the ordinary way of feeding, would have been given to their horses.

This saving having been attended with no loss of labour, or disadvantage to the animals, the continuance and extension of the system is a matter of high import to the public, and, if carried to the extent of which it seems capable, bids fair to form a new æra in the history of British agriculture, espe-

cially as all the articles proposed to be employed as substitutes for grain, may be cultivated with advantage, upon lands that would otherwise be in fallow, of course in an unproductive state.

The articles that have been chiefly employed, are turnips, roota baga, yams, potatoes, &c. all of which, under proper management, have been found to answer well. The turnips have chiefly been given in a raw state, withholding about one-half the usual allowance of corn, and in most instances where this has been done, the animals have got almost immediately into good condition and spirits, and done their work with more apparent ease than when fed in the ordinary way, with the full allowance of grain, with the additional advantage of their being entirely free from the frequent bowel-complaints to which they are liable, when fed entirely upon dry food.

Where the roota baga has been used, little grain has been necessary, and in some instances none has been given; though I am satisfied, that along with both this root and turnips, a proportion of well broken grain should be used, especially in a first experiment, and continued till the animals are habituated to the new food. The same plan should be followed when potatoes or yams are given in a raw state; but, when either the roota baga, yams, potatoes, &c. are boiled, which has been done in a few instances, no corn appears necessary. This mode, therefore, as it is attended with the saving of the whole grain, is unquestionably the best, and ought to be adopted in every situation where a sufficiency of these roots can be cultivated.

It will no doubt be urged by some farmers, whose indolence and inattention to these matters deserve reprehension, that the trouble of boiling a sufficient quantity for the whole working stock of a large farm, will be so great, as, in many instances, to render the plan impracticable; and certainly, at first view, it appears a weighty undertaking to boil daily a sufficient quantity of *potatoes*, *yams*, *roota baga*, or *turnips*, for 20 or 30 horses; but when the great saving of grain is considered, the trouble will weigh light in the scale, as, even in the ordinary way of boiling, an old man, or a boy, *unfit* for almost any other employment, will be able to do the work; but when it is considered, with what ease and cheapness steam can be applied to that purpose, the objection will entirely disappear. The operation of boiling is known to deprive these roots of a very great proportion of their watery

juices, leaving the most nutritive and farinaceous parts behind; the exclusion of these juices is however more completely effected by steam, which, as the application of it is at once cheaper and less troublesome, ought to be preferred to common boiling.

Amongst good farmers, during the greatest part of the season, each horse is allowed from a peck to a peck and a half of oats daily; but allowing only a peck to each throughout the year, upon a farm where 32 horses are kept, the daily consumption will be two bolls, or 730 bolls per annum; now, if upon such a farm the substitution of any of the articles mentioned, shall render only one-half the grain necessary, the saving in consequence will be 365 bolls per annum, a calculation by no means overstrained, and which, when applied to the whole of the working stock in these kingdoms, holds out a prospect of great public benefit, and promises, in a very material degree, to lessen our dependence upon other nations for bread corn.

From very careful trials, it appears that, in cases where only a small quantity of these roots is given, the health and condition of the animals are improved by giving them in a raw state, as, in that form, they have a kindly effect upon the bowels; and, besides promoting the digestion of the grain and straw, which they do in a remarkable degree, obviate the costiveness and other complaints incident to winter-feeding; but, in cases where they have formed the chief article of food, boiling has been found indispensible, as, in that state, a smaller quantity than what is usually given raw will not only support but fatten the animals, a thing strongly exemplified in the feeding of hogs: These animals can be reared to the full size upon raw potatoes, yams, carrots, roota baga, &c. and may be kept in good health for any length of time without the aid of any other food; under that management, however, they will not fatten, but, when the roots are boiled, they immediately begin to feed, and soon become fat, upon a smaller allowance than what was necessary to keep them alive in a raw state.

Carrots having been little cultivated in Scotland for these purposes, I am unable to speak of them from much experience; in the few trials, however, that I have known, the success has been such as to encourage more extensive attempts, which, even with the most prudent and circumspect farmers, are abundantly warranted, by the successful practice of many of the first counties of England.

Parsnips are also deserving of attention, from the ease with which they are cultivated, and the great quantity of saccharine or nourishing matter they are known to contain, and which is certainly in a much greater proportion than in almost any other vegetable with which we are at present acquainted.

Great as the advantage attending the use of these roots for the feeding of working horses appears to be, their importance is farther increased by the consideration of their being extended to the feeding of young horses, milch cows, winterers, young cattle, and sheep. Young horses eat them readily, and with great relish; and a very small allowance, in addition to the dry food upon which they are generally kept during the winter, puts them into as good condition and spirits as they generally are when fed upon grass during the summer. The case is the same with young cattle and sheep, all of whom are not only supported in health and vigour, but kept in a growing state throughout the whole year; a circumstance of great importance, though hitherto very little attended to in the rearing of young animals, as, in a great majority of cases, they are fed in such a manner as to be barely kept alive; during the winter months, owing to that treatment, their growth is stopt, they lose the little flesh they had acquired during the preceding summer, become stinted and hyde-bound, and, when the spring arrives, are in a state so wretched that many of them die, and those who survive require a great part of the ensuing summer to put them into a state fit to resume their growth, in which they can make little progress before the winter again sets in, and checks it; in that way, four or five years are required to bring them to the size that others of the same species generally attain in half that time, under different management.

For winterers, or straw-yard cattle, intended for next summer's grass, the advantage is also great, as a very small allowance given daily, in addition to the straw upon which they are commonly fed, keeps them in such condition, that, when the spring arrives, and they are put to grass, they fatten in half the time that beasts of the same kind commonly do when kept entirely upon straw through the winter, owing evidently to their bowels being habituated to soft juicy food. In that way, they escape the scouring to which the others are liable, and which not only prevents the strongest of them from feeding for several weeks after they are turned out, but, in cases where they are very weak, carries them off entirely. Young sheep,

known by the name of hogs, are also liable to the same disease, which is found to be prevented by the same means. In the feeding of milch cows, trials of the most satisfactory kind have been made, the quantity of milk being greatly encreased without any apparent injury to the quality, unless where turnips alone have been given; even in that case, it is prevented by boiling or giving the cows a little nitre amongst their other food.

The advantages that may arise from the use of these roots being generally adopted over the whole kingdom, in the way above mentioned, will be extremely obvious to every intelligent proprietor and farmer. It would be very considerable, even if they were cultivated upon lands that would otherwise have been employed in raising grain; but when it is considered what a large proportion of almost every arable farm is yearly under a naked fallow, consequently in an unproductive state, the growth of these articles upon such lands may be justly viewed as the creation of as much grain as their use will produce a saving of, and which would otherwise have had no existence; to which if we add, the saving that will will arise from breaking the proportion of grain continued to be given in conjunction with these roots—the advantage to the community will appear very great. From knowing pretty nearly the numbers of horses, &c. employed in agricultural and other labours, calculations, founded upon good *data*, might have been given, that would astonish and almost exceed the belief of most readers; but, as these things are generally read with a degree of distrust, I think it better to omit them, perfectly convinced that enough has been said to fix the attention of every person, having an interest in the cultivation of the soil, upon the subject.

Yours,

A. Z.

FOR THE FARMER'S MAGAZINE.

Hints as to the Advantages of old Pastures, and on the Conversion of Grass Lands into Tillage. By Sir JOHN SINCLAIR, Bart. M. P.

INTRODUCTION.

HAVING corresponded with some intelligent proprietors, and practical farmers, on the important question recommended by

the Board of Agriculture to attention of the public, namely, "*The Propriety of converting Pasture Land into Tillage*," I have thought it a duty incumbent upon me, as a member of the Board, and a well-wisher to the improvement of the country, to communicate the result of that correspondence, as several of the observations transmitted to me on that subject, seemed to be of considerable importance.

I. *Advantages of old Pastures.*

Before, however, the propriety of ploughing up old pastures is discussed, it may be proper, in the first place, to point out, some of the most important advantages to be derived from them.

1. The first advantage contended for is, that old pastures answer better for making butter and cheese than artificial grasses, and the idea is probably well founded. All seeds, particularly clovers, give the milk a strong taste, and altho' the quantity may be as great, or even greater, yet the quality is always worse, it will cast up less cream in proportion; the butter is less firm and waxy, and it will not keep so well. The cheese, also, is considerably inferior.

2. It is next asserted, that old pastures are better calculated for feeding cattle and sheep; but this can only be admitted with certain qualifications. In the opinion of that respectable farmer, Mr Culley, (who has had 50 years experience in the grazing line) "Artificial grasses, suited to the different soils, will be found to answer better than old grass, for feeding cattle, ewes, and lambs, during the beginning, and for the greater part of the summer; and even during the autumn, artificial grasses will feed ewes and lambs better than old grasses; whereas, on the other hand, fogs (or aftermaths, as they are called in the southern parts of England) from old grass, will certainly feed cattle better in the autumn, the richness, luxuriance, and strength of such herbage, being better calculated for their constitutions." It is believed, indeed, that it is hardly possible to fatten a large ox, to any degree of perfection, on herbage alone, without such pastures.

3. It is farther contended, that the hay made from old grass, though not so bulky, yet is of a better quality, and will keep longer in a good condition, than hay made from artificial grasses, particularly from a mixture of clover and rye-grass.

II. *Description of the Lands that ought to be kept perpetually in Grass.*

As old pastures are attended with such peculiar advantages, it is desireable to know, what description of land, ought to be kept perpetually in grass. It is certain that there are many old grazing pastures, which can afford to pay a considerable permanent rent in grass, even at a distance from any populous town, the value of which might be reduced, if subjected to the plough. It is the opinion of Mr Culley, that soft heavy loams, with a clayey or marly bottom or substratum, are universally injured by ploughing. Water-meadows also, should never be ploughed, as they furnish so large and valuable a produce in spring, in summer, and in autumn, without any other help than water, whilst the manure made from that produce, goes to enrich the rest of the farm.

With these exceptions, and that of land apt to be overflowed, there is every reason to believe, that old pastures may occasionally be converted, with public advantage, and private benefit, into arable land.

III. *Obstacles to the Conversion of old Pastures into Tillage.*

Before, however, the conversion of old pastures into tillage is recommended, it is right to consider, what are the obstacles which may stand in the way of such conversion; for, unless they are removed, any recommendation to that effect would be useless. These obstacles are, 1. Tithes; and, 2. The restrictions of the landlord.

In regard to tithes, whilst they continue undefined, they operate in a peculiar manner against the conversion of old grass-lands into tillage, by depriving both the landlord and the tenant of so large a proportion of the profit to be derived from it; and as there is every reason to believe that a very considerable extent of land in England is kept perpetually in grass, in order to avoid the payment of tithes in kind, is it not a most unfortunate circumstance, that some means are not thought of, for commuting, on equitable terms, a right that operates injuriously to the agricultural interests of the country?

As to the restrictions of the landlord, they are often necessary for the protection of his property. But, in the course of the inquiry, it will probably be in the power of the Board, to point out the conditions, under which old pastures

may be ploughed up, not only without detriment, but with advantage to the landlord, and to the public.

IV. *Preparation of the Soil.*

The preparation for the tillage crops, may be considered under three heads: 1. Draining; 2. Paring and burning; and, 3. Manuring.

In regard to *draining*, it should be done effectually, before the land is attempted to be ploughed; for very possibly it may have been kept in pasture, on account of its wetness.

As to *paring* and *burning*, it is certainly a useful practice, where old grass-lands are broken up, for it destroys numberless eggs and larvæ of insects, which are extremely injurious to the succeeding crops, and it almost insures the tenant from any damage he is otherwise likely to sustain from wire-worms, grubs, &c. Indeed, where the land is rough with furze, bushes, brambles, anthills, &c. it is hardly to be dispensed with. If the land is so smooth and friable, that paring and burning is not necessary, the best plan to adopt is, *to double-plough it*, by means of two ploughs following each other, the first plough taking off a thin surface of about three inches, and the second going deeper in the same place; both furrows not to exceed six inches. Mr Ducket's skim-coulter does the work at one operation. This plan is certainly the best to pursue, where paring and burning, from prejudice, or any other circumstance, will not be permitted.

As to *manuring*, if the land is not to be pared and burnt, lime might be spread on the surface, some time before ploughing, in order to destroy grubs and insects; but old pasture-lands are in general rich enough to be abundantly productive, without dung, until they are about to be laid down into permanent pasture.

V. *Course of Crops.*

The rotation of crops must depend upon the nature of the soil, and the manner in which it is prepared for cultivation.

If the land is pared and burnt early in the season, turnips is the best article that can be sown; and it is found by experience, that turnips thus raised, will go farther in feeding cattle or sheep than any other. If it is late in the season before the land is burnt, cole or cabbage may be adopted: if the land is broken up without being pared or burned, early oats will be found the most profitable crop, being so extreme-

ly productive on all fresh clean ground. Mr Culley states, that there are various sorts of early oats, suited for the different soils: for instance, on rich leys of strong loam, *Polish oats* ought to be preferred, of which that sort called *Church's oats*, is by far the best variety. On lighter soils, the *Dutch*, or *Friezeland oat*, has been found to answer best: but, on the whole, on loamy soils, no species has been found comparable to the *Potatoe oat*, so called from its having been accidentally found in a field of potatoes, in one of the northern counties. In regard to the succeeding course, on dry soils, turnips, potatoes, and clover ought to be the prevailing green crops; on mixed soils, beans may be added; and when the mixture inclines to heaviness, cabbages. The following rotation is particularly recommended, on a lightish soil, by Sir Alexander Ramsay; namely, 1. Oats; 2. Turnips, with dung and lime; 3. Barley, with seeds; 4. Clover; 5. Wheat; 6. Turnips; 7. Barley and grass-seeds; and then to remain in pasture. This intelligent and respectable farmer is decidedly of opinion that a full rotation of 7 years is to be preferred to a shorter time, with a view of enabling the tenant to profit by his labour, and thoroughly to pulverize and reduce the soil; it may then be laid down in a husbandlike manner, enriched and not exhausted, and likely to produce both hay and pasture in abundance and perfection.

VI. *Management during the Rotation.*

When land of a light quality is laid down with turnips, sheep should be folded on them. If the land is strong or wet, the green crops grown thereon, ought to be drawn, and fed in some adjoining grass-field, or in sheds. If the land is in very high health and condition, some farmers would be inclined to cart off half the turnips, and to eat the rest on the ground, though it is not a plan to be universally recommended.

In regard to manuring, it may be proper to observe, that the dung and lime ought to be applied to the turnips, or other green crop, but never to the different sorts of grain.

VII. *Mode of laying down to Grass.*

Grass-seeds in general should be sown with the barley, or the crop succeeding turnips, or any other green crop that may be preferred: the *quantity* of grass-seeds must be governed by the state and quality of the soil. Old tillage-land requires,

in addition to the clover, three pecks, or one bushel of rye-grass seed per acre; whereas new ploughed lands may do with half that quantity, or even less. Heavy lands require from 10 lbs. to 14 lbs. of red clover, if they are not to be broken up again in one or two years; but if they are to remain in grass, from 4 lbs. to 6 lbs. of marle-grass or perennial red-clover, and 4 lbs. of white. All dry soils may have from 2 lbs. to 4 lbs. of hop or yellow clover seed per acre, in addition to the white clover seed, and the perennial red-clover, or marle-grass already mentioned. The following plan is recommended by Mr Bridge, (a respectable farmer in Dorsetshire) for laying down land for permanent pasture; namely, to sow from 6 lbs. to 7 lbs. of white-clover, ditto of marle-grass, ditto of hop-clover, and one bushel of the best Devonshire rye-grass, which resembles much the Pacey rye-grass. By this means, there is a perpetual feed for five or six years. The hop, clover, and rye-grass flourish early in the spring; the marle-grass is in perfection in July, when the other goes off; and the white-clover is in perfection in August, and continues during the remainder of the season. In some meadows of very rich soil, perhaps lucerne ought to be preferred, and it would be of infinite importance to have it ascertained to what extent that culture could be carried.

As to providing the seed, much must depend upon the character of the tenant; but as farmers in general are too fond of the plough, it is the safest plan for the landlord to provide the seeds, as it must be for his interest to procure the best that can be purchased, to prevent any necessity, from the unproductive state of the grass, to have again recourse to tillage.

VIII. *Increase of Rent.*

It is evident, that any tenant would be willing and able to give an increase of rent, for the liberty of ploughing up old pastures. What the addition ought to be, must be governed by the situation, the quality of the land, the price of grain, and other circumstances. In Scotland double rent, and upwards, is not unusual on a lease of four years. The Earl of Rosebery has lately let about 300 Scotch acres of old pasture, at that rate, some part of which produce 8l. per

annum *. It had been pastured, however, for more than 16 years, and was situated within eight miles of Edinburgh. The high rent payable for such lands in Scotland may be attributed to the following circumstances:

1. That land fit for tillage, is less abundant in the northern part of the island than in England. 2. That old pastures are peculiarly well calculated for producing oats, the general food of the people †. 3. That such lands are in general so rich as to require but little manure, consequently the manure arising from the crops they produce may, in a great measure, be devoted to the improvement of the rest of the farm. 4. That the tenants in Scotland are not subjected to the payment of tithes, nor of poor rates, or other taxes: And, 5. That there is either a greater spirit of speculation among the Scotch farmers, or that they are contented with less profit than the English.

IX. *Conditions under which the Liberty of Ploughing may be granted.*

But the increase of rent is not the only particular that a landlord has to take under his consideration, when he grants the liberty of ploughing up old pastures. Unless care is taken, when they are broken up, that it is done under a proper system of management, the execution of which is enforced by the strictest regulations, *the real value of the property may be materially injured.* The conditions, therefore, that ought to be stipulated by the landlord, is certainly not the least important branch of this inquiry.

In considering the general nature of the conditions that ought to be required, I have derived much benefit from perusing the articles which were obligingly communicated to me by the Earl of Rosebery, and according to which, that noble Lord, in January 1801, let a considerable tract of old pasture, part of the estate of Dalmeny, in the neighbourhood of Edinburgh.

Art. 1. By this article the fields were to be set up to auction, and the highest bidder was to find security to fulfil the terms he had agreed to.

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* Equal to 6l. 8s. per English acre. In many instances, old pasture land would fetch in Scotland from 8l. to even 10l. per English acre.

† It appears, from the corn-tables, that wheat is almost always cheaper in Scotland than in England, and oats the reverse.

Art. 2. The grounds were let for four years: 1st crop, *oats;* 1d crop, *turnips or other green crops;* (if a naked fallow, four ploughings;) 3d crop, *barley and grass-seeds*, with two or three ploughings; and 4th crop, *hay;* prohibiting wheat, hemp, flax, &c. under the penalty of 10l. per acre of additional rent.

Art. 3. The tenant to plough the land properly, to hoe and weed it, &c. to sow with the third crop at least one bushel and a quarter, or one Scotch firlot of rye grass, 12 lbs. or 14 lbs. good red clover seed, and 4 lbs. white clover, and sufficiently to harrow, stone, and roll the same, entirely at his own expence.

Art. 4. The tenant to have liberty to cut and carry away the foggage, or second crop of grass, in the fourth or last year, but not to pasture the same *, and to remove every article belonging to him, on or before the 1st of November 1804.

Art. 5. The tenant to preserve the gates and fences, to keep the ditches, &c. clean and open, and to leave them in good condition at his removal; and, if neglected, the same to be done by the landlord, at the tenant's expence.

Art. 6. The tenant who shall be preferred, to sign a proper deed or instrument, with a sufficient surety, specifying the terms agreed upon.

Art. 7. Accommodation given to the tenant, to stack and thresh the crop, under certain obligations, that he shall keep the barn and corn-yard in repair.

Art. 8. An arbiter appointed to determine all differences, the expence attending any dispute, to be paid by the persons against whom judgment shall be given.

Art. 9. Tenants to remove, without the necessity of previous notice, under certain penalties.

Art. 10. Power reserved to the landlord, or to persons he may appoint, to inspect the fields from time to time, also to work coal and lime-stone, and other stones or gravel, to sink or dig pits, to make roads, and to do every thing necessary for carrying on such works, (allowing to the tenant the yearly value of the ground thus taken up, or rendered use-

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* This restriction was intended for the preservation of young fences; but where the fields are completely fencible, Lord Rosebery prefers obliging the tenant to pasture the second crop of clover.

less), also, reserving the power of carrying off wood and underwood, paying the damages arising therefrom.

It is evident, that, under such prudent conditions as these, if properly enforced, the most cautious landlord may suffer old pasture lands to be converted into tillage, without any material risk of his property being thereby injured.

X. *On the Propriety of laying down some of the Tillage Land into Grass.*

Wherever circumstances will admit of it, the landlord would find it for his advantage, to lay down the same quantity of old arable land into pasture that is broken up from pasture, and rendered arable, by which change, the farm will, on the whole, be much improved; and consequently it is for the interest of the landlord to consent to the alteration. It is, at the same time, in the opinion of one of our most intelligent farmers, (Sir Alexander Ramsay), one of the most difficult operations in husbandry, to lay down old tillage land, that has been for years under a ploughing system, (as, under 1. fallow, 2. wheat, 3. beans, &c.) into permanent pasture. One rotation will not be sufficient to produce good pasture, it may be found necessary to have two complete rounds of management, different from what the land has been accustomed to: As, 1. Turnips, cabbages, or summer-fallow; 2. Barley, with 12 lb. of clover, and one-half bushel of rye grass, to each acre; 3. and 4. Clover to stand two years; 5. Clover stubbed, broke up for drilled beans or peas, according as the land is heavy or light; 6. Turnips with manure; 7. Barley and grass seeds for permanent pasture. When the field in this course has been twice manured, it has never failed to produce good pasture, more especially if care is taken, the first year, to feed it off with sheep.

XI. *On the greater productiveness of Arable compared to Pasture Lands.*

Having thus shortly stated, the manner in which old pasture lands may be converted into tillage, it may be proper briefly to explain, how much the public is interested in such a conversion, in consequence of the much greater quantity of food for man that is produced by land in tillage. According to Archdeacon Heslop's comparative statement lately published, the weight of food from an acre of arable, on the average of three years, a fallow year being included, is

nine and a half times greater than from an acre of feeding stock; and, according to the calculations of a very intelligent correspondent of the Board, the reverend Dr Walker of Collinton, a Scotch acre of land in pasture, fed with sheep, produces only 120lbs. weight of meat; whereas the same land will yield 1280lbs. weight of oatmeal, or above ten times as much †. This is so important a circumstance, in a public point of view, that it merits particular attention, as it tends to prove, that where one million of people may be maintained by pasturage, from nine to ten millions may be maintained by tillage, and without any additional extent of ground for working horses, cattle, &c. if the land is cultivated by the spade.

Conclusion.

On the whole, though it may not be adviseable to recommend the ploughing up of very rich old pastures, or water-meadows, or land apt to be overflowed, yet, with these exceptions, there is every reason to believe, that other sorts of grass lands may be rendered much more productive, by being occasionally converted into tillage; and, for that purpose, it is desirable, that the conversion of such lands should be promoted as soon as possible,—by removing the obstacles to such conversion,—by enforcing the necessity of commuting tithes, without which no considerable tract of old pasture can be broken up,—by pointing out to landlords the conditions under which they may agree to such a plan, not only without detriment to the real value of their property, but also yielding a most important addition to their income,—and above all, by explaining to Parliament, and to the public, that the measure above recommended, is one which may effectually tend to prevent future scarcities, and to render this country independent of foreign nations, in the important article of provision.

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† If cultivated in whole, or in part, with potatoes, the difference would be still greater.

The Conductors are pleased with the opportunity of presenting the public with any thing coming from so respectable a quarter, and will be glad to receive the observations of intelligent readers upon the important subject to which this paper refers.

TO THE CONDUCTORS OF THE FARMERS MAGAZINE.

Disadvantages that attend want of Leases, and small Capital.

GENTLEMEN,

I GIVE your correspondent J. W. all credit for his wishes to improve the husbandry of the west; it certainly needs it: but I am greatly mistaken if his plan would contribute much to accomplish this purpose. He seems to have mistaken the cause of the disease, of course, he could scarcely be right in applying the remedy. When I read his letter and sketch of a lease, I formed the design of troubling you with a few observations on both; but, as I perceive that another of your correspondents promises some remarks upon the lease, I shall confine myself to the latter. Permit me, however, to observe, that every landlord, in granting a lease, should be considered as making over all right to the management and produce of the property let, for a certain time, upon condition of receiving a stipulated compensation, and the property at the end of that time uninjured. The lease, which rests not upon this broad principle, must be injurious to one of the parties, perhaps to both.

Your correspondent has spoken of the west country farmers not in the politest terms: "They move," he says, "and perform as they are impelled, like a machine or implement of husbandry." This is rather too bad: might he not at least have permitted them to be equal to their horses? This mechanical motion of theirs he imputes to hard labour, straitened circumstances, and contracted prejudices. Had he ascribed it to their straitened circumstances, as the great primary cause, and referred the other causes which he has mentioned to this, it had been both more liberal and just. Their poverty obliges them to work hard, and prevents them from enjoying those means of improvement which would cure their prejudices. A poor man is often accused of obstinate attachment to his own plans, because he does not adopt others which he is unable to execute: this, I believe, must necessarily be the case with many west country farmers; but J. W. has spoken of them generally in a manner too severe for persons more unfortunate than faulty: the remedy too

which he proposes, if in any case proper, ought to be applied to the incorrigible alone. He waves the general question, of restrictive covenants; but thinks that there can be no doubt of their necessity in the present case. He proposes, very judiciously, that proprietors or their factors should be well acquainted with farming; but, alas! what must become of the poor farmers if they are not? Without meaning the smallest disrespect to proprietors and factors, I may be allowed to say, that the generality of them cannot have that knowledge of agricultural affairs, which would make it adviseable to put practical farmers under their management. Should Mr W. be either a proprietor or factor, some may perhaps think that he will afford a proof of the assertion.

If, in any case, restrictive covenants and cultivation-tables are peculiarly improper, I should think, in opposition to this gentleman, that it is where improvements are yet to be introduced. Every one knows, that a good system of husbandry cannot be established without taking both soil and climate into account. It will be impossible to say how a single farm, much less how an extensive district, ought to be managed, till it be ascertained, by experiment, what treatment, soil and climate taken together, it requires. How absurd would be the attempt, then, to force a particular system upon a district, before it can be known what system is best calculated for it? Will Mr W. inform me, whether, in a climate so moist as the west of Scotland, wheat can be raised as advantageously as some other grains? perhaps it may; but I presume he is not certain. By not attending to the difference of circumstances, the management of the best districts might be introduced into the worst, and nothing gained by the exchange. If restrictions, in the manner of cultivating the soil, are ever to be justified, it is only for the purpose of confining obstinate or foolish men, where the best system has been clearly established; but, even to this there may be very weighty objections; and, therefore, I should think the best cure is, to turn bad farmers about their business, for the wisest regulations will not make them good.

How then shall we improve the husbandry of the west? for improvement it certainly needs. The sole cause of the present bad system, is the want of capital in the hands of the farmers: remove the cause, and the effects will cease. "Rotation of different crops, fallowing, summer-working, making and using of compost, straightening ridges, draining, irrigation, &c. west-country farmers count foolish and unprofitable:"

So says J. W. And what if I should say they are not greatly mistaken? except, perhaps, rotation of crops, using of compost and straightening of ridges, these operations would certainly be unprofitable to a person possessing 60 or 70 acres of land, and that not of the best quality. A man on such a spot, and I believe the greater part of west country farms do not much exceed that quantity, of arable land, cannot afford to make any expensive improvements. If he get his land once ploughed, and the seed thrown into it any way, he must be content, and endeavour to do something with his horses through the rest of the year, to keep himself and his family from starving. No man, possessed of capital, would throw it away on a small farm, where it could bring him no adequate return. He would not be fool enough to waste his time and his money on a piece of ground, the fee-simple of which could not repay him.

He that by the plough would thrive,
Himself must either hold or drive,

as poor Richard says; and so must the generality of west country farmers say; but no man will either hold or drive, who has stock sufficient to engage in any manufacturing or mercantile concern, where, with less labour, he can have a better return for his money. I do not say, that the farmers in the west know the best methods of cultivation, or, if they did, would be immediately disposed to adopt them; but what I say, is, that, with all the knowledge in the world, and with the best inclinations, their poverty would render it physically impossible to make great improvements.

Endeavour, then, to throw capital into the hands of the farmers, or, in other words, get the land into the hands of those who have capital: give them sufficient employment for themselves, without manual labour, and sufficient recompense for their attention and money: diffuse agricultural knowledge among them, their leisure will allow them to attend to it, and their own interest will soon lead them to adopt what is profitable. It might be of great importance, to encourage, by advantageous leases, some men of capital and abilities, to come from well cultivated districts: these, by their example, would demonstrate the utility of improvements, and soon induce the generality to follow them. It might be beneficial likewise to a large tract of country, if one of Sir John Sinclair's experimental farms were established somewhere about the centre of Ayrshire: experiments may be conducted upon such a plan, which it would be im-

prudent for an individual to hazard. But I repeat it again, that the poverty of the farmer must ever be an insuperable bar to improvement; remove that, else you do nothing; and that can never be removed, but by making farms of such a size, as to afford employment and compensation to men of capital and abilities. Let proprietors and their factors endeavour to accomplish this, and they will do infinitely more service to the cause of agriculture than by manufacturing leases.

If these loose hints are esteemed worthy of a place in your magazine, I shall, perhaps, trouble you on some future occasion, with an opinion upon that question, Whether proprietors or factors ought to be considered as persons most likely to discover useful improvements, and fit to direct practical men how to manage their farms. In the mean time,

I am, gentlemen, with best wishes for your success,

Yours, AGRESTIS.

PREMIUMS offered by the BOARD of AGRICULTURE, for 1801.

No. I.—*Condition of the Poor.*

To the person who shall draw up and produce to the Board, the best, simplest, and most practicable plan for ameliorating the condition of the labouring poor of this kingdom, by alterations in the poor laws, of easy execution, and without materially increasing poor-rates——*the Gold Medal.*

To be produced to the Board on or before the first Tuesday in March 1802.

No. II.—*Cottages.*

To the person who shall build on his estate the most cottages for labouring families, and assign to each a proper portion of land, for the support of not less than a cow, a hog, and a sufficient garden——*the Gold Medal.*

Accounts of the expences of building—land assigned—culture, if any—live stock, and state of the families, with the rent paid—verified by certificates, to be produced to the Board on or before the third Tuesday in April 1802.

The same premium for 1803.

No. III.—*Cows for Cottagers.*

Doubts having been expressed by some persons concerning the expediency of cottagers keeping cows, except on rich soils; the Board will give to the person who shall produce the most satifactory account, verified by experiments, of the best means of supporting cows on poor land, in a method applicable to cottagers——*the Gold Medal.*

Accounts to be produced of the soil—articles cultivated—produce—stock kept—and every material circumstance—verified by certificates, on or before the first Tuesday in May 1801.

The same premium for 1802.

No. IV.—*Culture of Plants.*

To the persons who shall make the most satisfactory experiments tending to the improvement of the culture of each of the following plants respectively; viz. wheat, rye, barley, oats, pease, beans, tares, buck wheat, turnips, cabbages, roota baga, potatoes, carrots, parsnips, clover, lucerne, sainfoine, chicory, hemp, flax, hops——*the Silver Medal.*

Accounts, verified by certificates, to be produced on or before the second Tuesday in May 1802.

The same premium for 1803.

The same premium for 1804.

No. V.—*Cottage.*

To the person who shall build and describe to the Board the cheapest cottage, being at the same time durable and comfortable——*the Gold Medal.*

A plan, elevation, and account of the materials and expence, verified by certificates, to be produced on or before the first Tuesday in May 1801.

The same premium for 1802.

No. VI.—*Shoes for the Poor.*

To the person who shall invent and execute, in a manner applicable to common use, the best and cheapest substitute for leather, in the shoes of the labouring poor, being an improvement on any that may at present be in use——*the Gold Medal.*

A pair of shoes, with an account of the materials and expence, to be produced on or before the first Tuesday in December 1801.

No. VII.—*Soiling Cattle.*

To the person who shall, through the entire summer of 1801, keep the greatest number of cattle in stalls, houses, or confined yards, and fed entirely in the soiling method with green food——*the Gold Medal.*

Certificates of the number of cattle, and acres of food, and sorts eaten, the quantity of dung made, with other circumstances of the experiment, to be produced on or before the first Tuesday in December 1801.

The same premium for 1802.

No. VIII.—*Waste Land.*

To the person who shall improve, and bring to the annual value of not less than 10s. an acre, the greatest number of acres heretofore waste, not less than fifty——*the Gold Medal.*

Accounts of the improvement, verified by certificates, including the state of the land before the experiment, and of the cultivation, expences, and produce, to be laid before the Board on or before the first Tuesday in March 1803.

Notice of the intended improvement to be sent to the Board.

The same premium for 1804.

No. IX.—*Draining.*

To the person who shall lay before the Board the most satisfactory account of one of Mr Elkington's drainages——*the Silver Medal.*

The soil and state of the land before draining, the method and expence of the improvement, with a plan, and the result of the operation, to be produced on or before the second Tuesday in December 1801.

No. X.—*Folding Sheep.*

To the person who shall, by a series of the most satisfactory experiments, ascertain the comparative advantages and disadvantages, and best method of folding sheep——*the Gold Medal.*

Accounts, verified by certificates, to be produced on or before the first Tuesday in April 1803.

The same premium for 1804.

No. XI.—*Irrigation.*

To the person who shall, in a country where irrigation is not generally in practice, water the greatest number of acres, and in the completest manner——*the Gold Medal.*

To the person who shall, under similar circumstances, water the next greatest number of acres, and in the completest manner——*the Silver Medal.*

Accounts of the old and new state of the land and value, the method, expence, and produce, verified by certificates, to be laid before the Board on or before the third Tuesday in January 1802.

The same premium for 1803.

No. XII.—*Horses and Oxen.*

To the person who shall make and report to the Board the most satisfactory experiments on the comparison of horses and oxen, in the general business of a farm——*the Gold Medal.*

The account, verified by certificates, to be produced on or before the last Tuesday in April 1783.

The same premium for 1804.

No. XIII.—*Green Crops for Manure.*

To the person who shall give the most satisfactory account, verified by experiments, of the effect of ploughing in green crops for manure——*the Gold Medal.*

Accounts, with certificates, to be produced on or before the first Tuesday in March 1802.

The same premium for 1803.

No. XIV.—*Potatoes and Wheat.*

Potatoes and wheat, in constant succession, being the course of crops which affords the most abundant food for man, the Board will give to the person who shall make and report the most satisfactory experiments, on not less than five acres cultivated in that course during four years——*the Gold Medal.*

Accounts of the soil, culture, produce, application or price, verified by certificates, to be produced on or before the first Tuesday in May 1804.

The same premium will be given (but not to the same person) for the same account of six years.

Accounts to be produced in May 1806.

The same premium continued—Accounts to be produced in 1807.

No. XV.—*Manures.*

To the person who shall lay before the Board the most satisfactory account, verified by chemical experiments, or other sufficient authorities, of the nature of manures, and the principles of vegetation——*the Gold Medal.*

To be produced on or before the first Tuesday in December 1801.

No. XVI.—*Manures.*

To the person who shall lay before the Board the most satisfactory account of the application and effect of manures, verified by practical experiments on not less than one acre for each sort of manure——*the Gold Medal.*

To be produced on or before the first Tuesday in December 1802.

The same premium for 1803.

No. XVII.—*The Weather.*

To the person who shall lay before the Board the most satisfactory paper on the means of ascertaining the probable state of the weather, so as to furnish useful information to the husbandman——*the Silver Medal.*

To be produced on or before the third Tuesday in May 1801.

The same premium for 1802.

No. XVIII.—*Instruments.*

To the person who shall give the best account, with drawings, of the various instruments of husbandry——*the Gold Medal.*

To be produced on or before the first Tuesday in November 1801.

The same premium for 1802.

No. XIX.—*Land for Cottagers.*

The Board having received information that the labouring poor on the estates of several persons in Rutland and Lincolnshire, having land for one or two cows, and a sufficiency of potatoes, have not applied, in the present scarcity, for any parochial relief; and it appearing to be a great national object to spread so beneficial a system, the Board will give

to the person who shall explain, in the most satisfactory manner, the best means of rendering this practice as general through the kingdom as circumstances will admit——*the Gold Medal.*

To be sent to the Board on or before the first Tuesday in November 1801.

No. XX.—*Cottage.*

To the person who shall produce to the Board the model of the best and cheapest cottage, on a scale of one inch to a foot, with estimates of the expence of erecting it——*the Silver Medal.*

To be produced to the Board on or before the first Tuesday in December 1801.

No. XXI.—*Oven.*

To the person who shall produce to the Board, the best cottage oven, to bake, at one heating, bread sufficient for a family of six, for a week —— *the Silver Medal.*

Cheapness of the oven and fuel essential points of merit.

To be produced to the Board on or before the first Tuesday in December 1801.

No. XXII.—*Cottage Bed.*

To the person who shall produce to the Board the best and cheapest bed and bedding for a cottage, being an improvement on any already known——*the Silver Medal.*

To be produced to the Board on or before the first Tuesday in December 1801.

No. XXIII.—*Experiments.*

To the person who shall produce to the Board an account of the most important experiment or experiments in agriculture, made during the year 1801 or 1802——*the Gold Medal.*

Accounts to be produced, verified by certificates, on or before the first Tuesday in March 1801.

No. XXIV.—*Plough.*

To the person who shall produce to the Board the plough which shall, with the least force, turn a furrow not less than six inches deep, and nine broad, in the best and neatest manner——*the Gold Medal.*

To be produced on or before the first Tuesday in February 1801.

The plough which gains the premium to remain the property of the Board, the price of it being paid.

No. XXV.—*Carts.*

To the person who shall produce to the Board the cart, or other carriage applicable to common use, in which one horse shall draw the greatest weight——*the Gold Medal.*

To be produced on or before the first Tuesday in February 1802.

The cart which gains the premium to remain the peoperty of the Board, the price being paid.

No. XXVI.—*Laying down to Grass.*

To the person who shall, in the most satisfactory manner, make the following experiment in laying down land to grass, on a scale of not less than three acres to each division, and report the result to the Board——*the Gold Medal.*

The land to be divided into three parts, one sown with grass seeds among barley or oats, in the spring, on land that was fallowed, or yielded turnips the preceding year: one sown with grass seeds alone in July or August, having been fallowed from the Michaelmas preceding: and the third sown with grass seeds and wheat early in September, having been fallowed or cropped with tares or turnips: the soil to be of the same quality; the grass seeds the same in each division The grass to be fed with the sheep the first year. Accounts, stating the comparative expences and success of the three methods, verified by certificates to be produced to the Board on or before the first Tuesday in December 1803.

No XXVII.—*Seed Wheat.*

To the person who shall, by the most satisfactory comparative experiments, ascertain the proper quantity of seed-wheat to be used per acre, in the common or broad-cast husbandry; not less than one acre to be applied to each quantity of seed——*the Gold Medal.*

Accounts, containing a particular description of the soil,

and the preparation thereof, including the manuring, if any; also the time of sowing; the various quantities of seed employed; with the respective products, verified by certificates, to be produced to the Board, on or before the first Tuesday in December 1802.

No. XXVIII.—*Seed Wheat.*

The same premium as in the preceding number, and on the same conditions, to be given for ascertaining the proper quantity of seed wheat dibbled on a clover or other lay.

No. XXIX.—*Seed Barley.*

To the person who shall, by the most satisfactory comparative experiment, ascertain the proper quantity of seed barley to be used per acre, in the common or broad-cast husbandry; not less than one acre to be applied to each quantity of seed——*the Gold Medal.*

Accounts, containing a particular description of the soil, and the preparation thereof, including the manuring, if any; also the time of sowing; the various quantities of seed employed; with the respective products, verified by certificates, to be produced to the Board on or before the first Tuesday in December 1801.

No. XXX.—*Seed Oats.*

The same premium, and on the same condition, to be given for ascertaining the proper quantity of seed oats.

No. XXXI.—*Seed Oats.*

The same premium, and on the same conditions as in the preceding number, to be given for ascertaining the proper quantity of seed oats dibbled on a lay, or on old pasture ground.

GENERAL CONDITIONS.

I. The Board reserves to itself the power of withholding any premium, when the communication or communications are not deemed sufficiently important to merit the reward.

II. The MS. &c. sent in claim of premiums, to remain the Property of the Board.

III. All memoirs. &c sent in claim of premiums, to be without names, but with a mark or number; and accompanied by a a sealed letter, (on which is to be written the same mark or number,) containing the name and address of the claimant; which sealed letter will not be opened unless the premium is adjudged to that markror number.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

GENTLEMEN,

In your Magazine, No. 4., page 386, a Perthshire farmer recommends planting in spring old *roots of cabbages* and *open kail* that had been cut, after taking off all the young shoots but one. I have made a trial of this method, and find all the cabbages and kail so planted, run to seed. I wish to know if any of your other readers have tried it, and with what success? For I am much inclined to think I ought to have predicted such a consequence. A. S.

Edinburgh, 6th April 1801.

FOR THE FARMER'S MAGAZINE.

LETTER V.

Strictures on Farm-Management near London.

(Continued from p. 126.)

August 1799.

In the foregoing observations, I have endeavoured to sketch out a regular plan of fallow, by which land such as yours will be rendered highly productive to its occupier, and to the community.

I shall now advert to several points of practice, in which I consider your neighbourhood as being highly reprehensible. Perhaps my observations, on these miscellaneous subjects,

may run into length. I have not presented to myself any strict plan of writing; but mean only to take the subjects as they rise in my mind, or as presented to me by the notes I took when viewing your estate. My intention is, to give my ideas on the means of improving land such as yours, not to write a regular system of husbanndry: that would require more leisure and more information than I am possessed of.

Although your land would certainly be rendered much more productive than at present, by means of a clean fallow, conducted on the plan I have endeavoured to point out; yet it would not, by that means only, be brought to its utmost possible state of productiveness, which should ever be the object of every judicious husbandman having a secure holding, so long as the portion is kept continually under tillage, and the rest invariably in hay, meadow, and perpetual pasture. The alternate husbandry, by which the soil is prepared for carrying large crops of cultivated herbage, by means of perfectly well-conducted fallow, and clean crops of grain and pulse; and by which the soil is ameliorated for bearing large and profitable crops of marketable grain, by means of pasturage; that is the husbandry attended with the greatest profit; and such is the system of husbandry which should always be followed, except in very peculiar situations, and under very particular circumstances.

I know that the *tythe* is reckoned an obstacle to agricultural improvements, and an inducement to keep as much land as possible continually in grass. But, as your estate is about to get clear from that impediment, I have formed these observations as if it did not exist.

The plan of management, or system of husbandry, which I mean to propose, is likewise the way in which most is contributed to the public stock, of bread and butter, beef, mutton, &c. The patriotism, therefore, of the skilful and industrious husbandman, when thus unfettered, is of the most glorious and useful nature, as it equally serves the interest of the commonwealth and the patriot; while at the same time it remains perfectly free from cruelty, rapacity, and corruption.

I observed on your estate very particularly, and saw with regret the same slovenly management to prevail through a great part of my journey, that a full ridge-breadth, from fifteen to twenty feet of land, is uniformly lost to every purpose of husbandry, at the head and foot of every field, on which the

plough is turned; and that, almost generally as much land is lost on each side of every field, beside the hedges. These neglected portions are never ploughed or manured, and are, in many cases, interspersed with a variety of useless stinted shrubs and bushes of different kinds. This scandalous waste of land, and shameful mark of sloth and negligence, should instantly be done away. All these wretched bushes should immediately be grubbed up; they incumber the ground uselessly, prevent the operation of the plough, and consequently diminish the general productiveness of the land, and occasion a very great waste of wool, by tearing it from the backs of the sheep.

Without pretending to have made any thing like an accurate calculation on this subject, I conjecture that, on the average, not less than a sixth part of the arable land is thus left unproductive. This loss, at the present high price of wheat, amounts to no less than thirty shillings for every acre in the field; calculating on the wheat produce as given me by your foreman. Under a more perfect system of cultivation, the loss on this single article of negligence, would amount, at the present price, to forty, fifty, or even sixty shillings an acre. Were the loss only a fourth part of what I have here assumed it to be, it is certainly an object of sufficient moment to call for instant correction. If a field is worth cultivation at all, no part of it ought, on any account, to be thus shamefully left waste.

I can readily discover the origin of this evil in the hedge-row timber, which encumbers the fields in many parts of England. This I would gradually do away, where it exists, by grubbing up all such noxious timber, on land that is capable of profitable cultivation; and guard against its return in future, by distributing timber and coppice in distinct plantations, on the worst soil of the several estates, and in such broken grounds and strips as might be difficult and expensive to bring under proper cultivation.

In all arable lands, the hedges ought, as much as possible, to be in straight lines, trained up by the pruning knife into living walls, of five or six feet high, about two feet and a half thick at the bottom, and dressed off at the top into a round or edged ridge.

If hedge-row timber is persisted in, it ought to be dressed up into tall standards, with small heads, so as not to overshadow and spoil the crops of corn and grass below. The kinds of trees, planted in hedge-rows, should always be those

which form dipping-top roots, never those which spread their roots wide immediately below the surface, which invariably rob the growing crop for a good way round of the nourishment they would otherwise derive from the soil. Coppice-wood, or short bushy pollards, ought never to be permitted in hedge-rows, especially in small fields; as, besides the evil derived from their roots to the growing corn and grass, they prevent the circulation of air, so necessary for drying succulent herbage into hay, and for winning, as we term it, the corn crops. Besides, hedge-row timber or coppice destroys the hedges, when it comes to be cut down, by producing incurable and unsightly gaps.

R. r. r. r.

LETTER VI.

Strictures on Farm-Management near London.

August 1799.

I was strongly led to condemn the system of dry meadow, or perpetual hay-field management, in lands that are adapted for cultivated crops. By keeping these fields continually in hay, they become excessively foul. Every weed, which finds the soil congenial to its nature, continually improves in vigour, and is constantly pushing forwards its roots, or dispersing its seeds all around, to occupy the soil. While, at the same time, such herbage as a discriminating and judicious farmer would chuse to cultivate, from its superior nutritious quality, early growth, and abundant produce, is gradually choaked up, and perishes, leaving the field at length almost exclusively occupied by an endless variety of weeds, many of them altogether useless to man or the animals which he breeds for profit, and many of them highly pernicious in their qualities.

Instead of this slovenly plan, I would strongly inculcate the advantages to be derived from cultivated herbage, on land previously rendered clean from weeds by the fallow-process properly conducted, and left in vigour, by not having been over-cropped, and by having been thoroughly manured during the preceding rotation of arable crops.

Among these superior herbages, I reckon rye-grass and red clover as first in rank; especially where the land is only

to remain one year, or at most two years, in grass. Where a longer time is required, white clover, trefoil or yellow clover, and rib-grass or narrow-leaved plantain ought to be mixed in proper proportions. On soils adapted for their cultivation, sain, and soin or cinquefoil, and lucern, may be cultivated to advantage; but of these I do not pretend to have any practical knowledge.

I will engage that, by a judicious management of cultivated herbage, the produce of the land will be encreased a full half more, both in hay and pasturage, than is to be derived from the general run of perpetual meadow; besides, the enormous encrease of corn produce, which, with the most perfect certainty, is to be procured from the alternating system of husbandry, to be afterwards detailed.

I know that, in certain soils, but they are very rare, great crops of meadow-hay are reaped almost every year, which give greater profit to the occupier than can be derived from almost any system of cultivation. Your land, however, is not of that description, as I have formerly pointed out, by an instance of earlier and superior produce from a slip of newly cultivated herbage in your best hay-meadow.

Where irrigation can be practised without any very great cost, the system of constant hay-meadow may perhaps be more profitable than aration. In the neighbourhood of large towns, where milk is in great demand, and sells high, continual hay-meadow and pasture may likewise be extremely profitable. Yet I am very strongly inclined to believe that, even within a few miles of London, laying the tithe aside, which I do not profess to understand, the land would be greatly more productive under the alternate system, bringing in the cultivated grass crop as frequently as possible.

I do not pretend to be a good judge of *sheep*, or of their management. But the sheep I saw on your land, and, generally speaking, for many miles north from London, seem to me a very bad kind. They are all horned, which is dangerous to the ewes in lambing. They are very leggy, and have small fore-quarters, both of which are bad qualities to the butcher. So far as I could judge, their fleeces appeared very light.

In their management, too, I have several circumstances to find fault with. You are far too long in shearing them. When I was on your estate, they were still labouring under their wool in the beginning of July: Whereas, in your climate, and in your well-sheltered fields, they might have dis-

pensed with the burthen a month or six weeks earlier. Besides keeping the sheep too warm, a great deal of the wool is scratched off and lost, by keeping on the fleeces so long.

I have already thoroughly reprobated your folding plan. If that is still to be persisted in, I would strenuously advise, that they should have food, while in the folds, upon the fallow-grounds. This is practised in several parts of England. Hay is regularly given them in proper racks. Some superior managers even supply them regularly with water, in long narrow troughs, led by means of a water-cart, while in the fold on dry hay.

The Dishley, Bakewell, or New Leicester breed of sheep, is, I believe, generally speaking, the most profitable to the husbandman of any in the island; especially on rich productive soils. But they, or any other, should never be half starved, pent up in close folds, to muck the land; and to eat, or rather to famish on, the so called fallows. Sheep, and every kind of fatting stock, should always have as much food as they can lay their teeth to. Thus they fatten early, and give uniformly the highest profit for their keep. The ewes, thus treated, fatten off their lambs soon, at a season when lamb sells at a high price; and are themselves much sooner afterwards ready for the butcher; and thus they much sooner make way for a new flock, to run the same round of profit. Besides, it is an established fact in husbandry, that the dung of animals high in condition, is of a much more fertilizing quality, than that of such as are pinched in their food, and in low order.

Within the moderate distance from London at which you are situated, perhaps it might be an object to breed early lambs, from the Dorsetshire sheep: But, as I pretend to no accurate knowledge of this subject, I merely mention it here as a hint, which may deserve being inquired into.

R. r. r. r.

TO THE EDITORS OF THE FARMER'S MAGAZINE.

Making of Composts on Head Lands.

GENTLEMEN,—One of your constant readers begs to obtain from you, or your correspondents, through the channel of your Magazine, the best directions that may occur as to the pro-

per mode of *forming a compost midden out of a head-land*; which is a mean of procuring, without expence, materials for compost, that must frequently present itself to farmers, who have lands under constant tillage.

The Querist has a field, sown with oats, which he intends to crop with turnips next season. The head-land upon which the plough turns, at the lower extremity of the field, (which lies on a declivity) has had an accumulation of soil, from plough-carriage and rain-washing, so as to allow of the removal of perhaps a spading of earth all along, without danger of reducing it to an inferiority to the generality of the field.

To save expence of carriage in removal of this spade-depth of earth of said head-land, he proposes to cultivate it into compost by the plough, as it lies, and to apply it next season to the turnip-crop upon the field; which will make one carriage serve for all.

These preliminary parts of the process are with him indispensable; and, in regard to other farmers taking advantage of the same opportunity, he conceives that, if not indispensable, they will at least be often found extremely convenient in point of saving of both expence and time.

What he wishes, then, is to have directions how to form, in the best manner, the surface-soil of this head-land into compost, by means of *mere plough-labour*.

The soil of the field and its head-land, though more tenacious than sand, and inclined a little to clay, is not at all of that stiff sort adapted to beans or wheat, but abundantly free, so as to be well adapted to turnip-culture.

He proposes to plough his head-land repeatedly through summer; to clean and pulverize the soil, and also to lime it very heavily. In regard to the application of dung along with the lime, he has been puzzled by varieties of opinion, (whether founded on mere theory or justified by practice, he can't pretend to say) some alledging that *hot lime* might dissolve, or rather *annihilate* the dung, so that the midden would receive no benefit; some, that lime, either hot or cold, would have this effect; others, that the dissolution of the dung by the lime would redound to the benefit of the compost.

Any directions, *justified by practice*, as to forming the midden, whether with lime alone, or dung alone, or with both together:—As also, as to the mode of laying up the soil

through winter, *by the plough alone*, if practicable, or at least with as little of spade-labour as possible:—will much oblige your constant reader*.

M.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On Tithes, and Oxen for Draught.

GENTLEMEN,

I CONGRATULATE you on the completion of your first volume, and the hitherto promising success of your plan and execution: may the succeeding ones equal, or surpass the first. I am sorry my leisure, of late, has not been such as to permit me to give that assistance which, to have been able to do to any purpose, be assured, would have been my pleasure and pride; and it gives me real satisfaction to observe your pages filled with the supplies of abler correspondents. Yet permit me to observe, on the letters on Tithes, and Oxen for draught, in No. IV. that the writers appear to me to have got the "*wrong sow by the ear*," on both subjects, though that on tithes was satisfactorily replied to by a correspondent in No. V.

To any one who has been long accustomed to the drudgery of obtaining enclosure-bills in South Britain, it is perfectly astonishing to hear the assertion, "that the enclosure and cultivation of wastes is not discouraged by the tithe system," when it is well known that the hatred and aversion of cultivators to this system is such, that they, on almost every enclosure, insist on a commutation of tithes as a preliminary step, a *sine qua non*; that the tithe-owner, improving on this known principle, scarcely knows what proportion, or what terms of commutation he would be contented with; and that the commoner, who, if roused by other wants and circumstances to be in earnest for enclosing, yet views with reluctance the quantity of land he must lose for ever, perhaps to be settled in *mortmain;* that land, or portion of the soil which is *real* property, too, to be exchanged and alienated for ever, as a compensation for the tithes,—is it to be

* In forming a compost of that kind, the dung, in the ordinary way of management, is in a great measure lost, and will certainly be used to much greater advantage by itself: When lime alone is used, the compost may be very completely made by the plough, taking care not to lay the whole lime on at once, but at different times, ploughing and harrowing well after each liming.

marvelled at, that this system, with its undefined and unlimited claims, should prove a real bar and obstacle to enclosures? Reasoning apart, we know it to be so, and in many instances *insuperable*.

While such depriving systems are persevered in, in the teeth of experience; and while we are too frequently meeting with doubters on the subject, even among those who ought to know better, as well as determined supporters among those interested in such systems, no wonder that famine stalks abroad, scourging the country. Allow me also to say, this writer is rather sarcastic on the practice of English husbandry. He may be assured, that 5 horses, &c. to a plough, and 5 tons per acre turnips, are as much exploded here as in his own neighbourhood; and that, in the real agricultural and turnip districts of South Britain, 50 tons per acre would not be marvelled at, even without *drilling*; for this writer ought to know, that very good crops of turnip may be raised in the *broadcast method*, when well hoed, though the *drilling* of them is by no means a *new* practice here.

A word now on the comparison of oxen with horses for draught. To a South Briton, who has been at all times accustomed to working oxen, who has usually worked good stout beasts, weighing, when fattened, 70 or 80 stones of 14 lb. in single yokes or cottars, along with his horses; who has repeatedly sent them out, 2 horses and 2 oxen in his waggon loaded with corn, as for 4 horses, and also with back-carriage of 2¼ tons of coals, from 12 to 15 miles, and back, in the day, a journey of course amounting to from 24 to 30 miles, besides the long delays; and has regularly seen his team so mixed, return as early as when horses alone were sent; I say, to a person so circumstanced, it seems surprising to hear 6 *oxen* set against 2 *horses*, by way of comparison of their respective merits, he consequently gives up all further examination of the subsequent reasoning and calculation, when he finds the data so enormously wide of the truth.

It is no uncommon thing to see, in this part of the island, a pair of oxen, *without a driver*, as tractable at the plough as horses, and performing nearly, if not quite as much work as a pair of heavy cart-horses. The natural conclusion for us therefore is, that the oxen your correspondent assumes, are of the *small black kind*, such as we see travelling on our

roads southwards for a market, and which are so diminutive in size, as well to warrant the comparison above mentioned †.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On the Exaction of Tithe in Kind.

GENTLEMEN,

As I believe nine-tenths of your readers are satisfied that the exaction of tithe in kind operates materially in impeding agricultural improvement, it is unnecessary for me to trouble you at any length, in answer to the remarks of a *Scotch farmer*, p. 152. I am induced, however, to notice what he states, concerning the extra expence incurred, in converting what he calls the *old fogged pastures of England* into corn fields, which he considers to be so trifling, that the whole of it may be defrayed out of the first year's crop. In my humble opinion, the expence of such a conversion would be considerable, perhaps not under fifteen pounds per acre, were the several operations executed in a suitable manner. Suppose, for instance, that a crop of oats is taken the first year, so far no extra expence is incurred, unless draining is required, but what may be defrayed out of the crop during the second year, when a complete summer-fallow, and a dressing of hot lime, will be indispensibly necessary to quicken and stimulate

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† The Conductors find themselves under the necessity of dissenting, in the most decided manner, from the opinion of the author of this communication, in regard to the comparative usefulness of horses and oxen, for the purposes of draught or burden, an opinion in which they are supported, by the practice of almost every improved district in Britain; in the greatest part of which it will be found, that in proportion as improvements have advanced, oxen have fallen into disuse; and though in a few situations where the system of agriculture has made considerable advances towards perfection, a strong predeliction is still entertained for oxen; we are disposed to think, that, even in these situations, if a fair debtor and creditor statement were made out, the comparison would be greatly in favour of horses.

In one point we agree with our correspondent, and are of opinion, that the great encrease in the number of horses for draught, burden, posting, pleasure, and other purposes, the quantity of grain required for their support, which exceeds in a very uncommon degree the proportion formerly assigned to our domestic animals, has occasioned a consumption that has not only put an end to the export trade, but rendered exportation to a great extent necessary: We think it highly proper to state this fact, as it leads to a measure essentially necessary to the salvation of the country, that is, the bringing of an additional number of acres under the plough.

such old fogged lands; the outlay, when added to the rent and labour, will not be less than I have stated. Your correspondent may here tell me, that this is not the manner in which the grass lands of England are managed, when converted to to tillage.—So say I,—but what is the cause which prevents it from being practised? Most undoubtedly no other than that the profits are seized upon by a third person, who neither limes nor fallows. I have no objection that such should draw a part of the rent, but industry ought never to be taxed. Our Scotch teind laws are founded upon this principle, and I suppose the *Scotch farmer* will join me in bestowing that praise upon our northern legislators which their wisdom and prudence eminently claims.

With regard to the question repeated, "Whether tithe-"free lands are generally better cultivated than those liable in "tithe?" I formerly stated in substance, that a commutation undoubtedly secured the farmer in the full possession of the profits of every improvement he might make, which I considered as a strong incitement in favour of superior management. I may now add, what I consider to be a decisive argument, viz. that where tithes are taken in kind, the tenth part of the dung is annually abstracted from the premises, or, in other words, that once in ten years, the farm is robbed of every particle of manure. I am fully sensible that your correspondent knows so well how to appreciate the value of dung, that I must believe he overlooked this objection, when he made it a question, Whether titheable lands, or those tithe-free, were generally best cultivated, i. e. improved?—I am,

Yours, &c.

N. B.

FOR THE FARMER'S MAGAZINE.

Sketch of a Tour through the Northern Counties of Scotland.

PART III.

ABERDEENSHIRE is an extensive district, and forms the north-east corner of the island. The general divisions of the county are *Mar*, *Formartin*, *Buchan*, and the *Garioch*. *Mar* comprehends that part of the county, which lies between the

rivers Dee and Don, and is upon the whole very barren and mountainous. *Formartin* extends from the Don to the Ythan, and is bounded, on the west, by a ridge of hills near Old Meldrum: on the south it is intersected with mossy bogs; but northward, the soil is of a clayey nature, and capable of much improvement. *Buchan* includes the land from the Ythan to the Doveran; and, with a few exceptions, may be wholly cultivated. *Garioch* lies in the inland part of the county, and consists of an extensive vale, generally 8 or 10 miles in breadth; most of which is good arable land, well calculated for every modern improvement.

In no part of Britain have greater improvements been made upon the soil, than in the vicinity of Aberdeen; and, what to some may appear surprising, these have been chiefly executed by persons, not trained up to agriculture, but whose early life was devoted to the purposes of trade and manufactures. These cultivators may be justly ranked as friends to the human race; they have given funds for the subsistence of mankind, from whence none were derived in former times, and increased the national stock in its most permanent branch. In fact, no agricultural enterprise appears too hard for an Aberdonian. Rocks have been blown, large stones dug up and carried off, the soil trenched, and lime and dung applied, where the hand of sterility formerly ruled, and where nothing was to be seen but barrenness and poverty. It is with pleasure we notice, that the reward has been in proportion to the merit of these extraordinary exertions, and that rents from 3l. to 4l. per acre are now produced, where scarcely 1s. was paid prior to these improvements. In the hands of the men of Aberdeen, the waste lands of England would be a fund from whence more wealth could be drawn, than from the mines of Mexico and Peru united; yet John Bull staggers, when the cultivation of these wastes is mentioned, and pleads established usage, as an excuse for leaving them in their present unproductive state. The conduct of such cultivators is so praise-worthy, that we could dwell on it much longer, did the limits of this communication admit of it.

Leaving *Aberdeen*, we passed through the heart of the county by *Old Meldrum*, a route we would not recommend to future travellers. Before crossing the river Don, the land is highly cultivated, carrying excellent crops of turnips, potatoes, beer, clover, &c.; and we learned, that the husbandry of Flanders is here successfully imitated, kail being

generally planted immediately after the potatoe crop is taken up, and turnips often sown after the bear crop is reaped. Passing the bridge of Don, the country altered much for the worse; the roads were rough; cultivation was only partially carried forward; the crops were inferior, and population appeared very limited. Adjoining Old Meldrum, there are some good fields; one of them carrying wheat, the first of that grain we had seen since leaving Aberdeen, though the stage is 18 miles.

From *Old Meldrum* to *Turreff*, 17 miles. Along the road we saw several fine fields of barley, oats, grass, and turnips, particularly at the *Chapel of Segget*. Few potatoes were discernible, though their utility, as an article of food, is now extensively recognised. The general run of the soil of this tract, being dry and heathy, renders it very eligible for what is called the stock-husbandry; though at present only black cattle are kept. We saw several extensive farms; but little of the land was inclosed. The prevailing objects seemed to be the growth of corn upon the best land, and pasturing cattle upon the inferior soils; in these respects, we consider the general system of Aberdeenshire, to be exceedingly defective. Saw two pair of fine working bullocks near the Chapel of Segget.

To *Banff* 10 miles. Some good fields of barley, oats, and grass, to the westward of Turreff; and the country, northward, appeared to be in a thriving state, where any tolerable attention was paid to cultivation. At *King Edward*, we noticed fine oats; indeed the general run of crops had no medium, either very good, or very bad. Met, on the road to Banff, a great number of carts, with lime-shells, imported from Sunderland and the Frith of Forth; which, from every account given us, produced infinite benefit upon the soil of this district. It is only a slight liming, after all, that is given, perhaps not exceeding twenty barley bolls per acre; but the advantage is obvious. The carts are generally drawn by one horse, and lightly laden, the roads being bad and unequal. In no instance is the police of Aberdeenshire so defective as in road-making; for there is not a turnpike within the bounds of the county (at least, we have heard of none) and the public are so well acquainted with the management of what is called the *statute-labour*, that no surprise will be excited, when they learn the uncomfortable state of the roads in this district. It gave us pleasure, however, to hear, that a new line is about to be marked out;

and as most of the roads recently made in Britain are construoted and executed upon more scientific principles than were adopted at the introduction of the turnpike system, we trust, that, at a future period, this county will be as much superior to others in that respect, as it is at present behind every county in the lowlands of Scotland.

One trait of Aberdeenshire husbandry must be noticed, before going farther, which is, that all the turnips we saw were sown in the broadcast manner, a mode of cultivating this root, not practised, we believe, in any other part of Scotland. Much attention seemed, however, to be paid to them, as the land was sufficiently cleaned; indeed, the farm-servants appeared to have no other work to perform; for very little naked fallow was to be seen. What appeared surprising to us, we did not perceive a single female employed in field-labour, which is all executed by men; contrary to the practice of the southern counties, where work of that kind is performed by girls and boys, while the men work the horses, all the summer months.

Another thing that deserves notice is, that *beer* or *bigg* is universally sown in this county, instead of barley, which is customarily sown in almost every other lowland district, being found more valuable and generally more prolific. The crop of beer, however, seemed excellent, and, as every district has its particular climate, we refrain from condemning the custom of sowing this variety, hoping that its superior utility is sanctioned by experience.

Very few sheep are kept in Aberdeenshire, and these are much neglected; nor can this animal be kept with profit, till the general size of farms is encreased, and the flocks put under the care of skilful shepherds. The rearing of cattle seems to be an object which meets with more attention from the farmer, though a considerable part of the ground is naturally more applicable to the sheep husbandry. A great outcry has prevailed, that sheep have depopulated Scotland; but this county affords a pregnant proof, that the popular idea is altogether unfounded. Perhaps the number of sheep here is less than were kept a century ago; whereas, if Aberdeen and other towns are deducted, the population of the county has consideraby decreased, a circumstance that cannot be placed to the account of large farms; for nine-tenths of the land are possessed by small farmers. In fact, the size of farms has been materially lessened since the beginning of the 18th century; yet, none of the consequences have been pro-

duced by the reduction, which, according to the warm, but mistaken principles of rural political declaimers, ought naturally to have followed. The radical defect of husbandry in this district proceeds from the want of capital among the tenantry; and, till this defect be remedied, Aberdeenshire will not make that figure in the agricultural annals of Great Britain, which, in other respects, it is so well calculated to maintain.

The approach to *Banff* is beautiful in the extreme. The Moray Frith in front, a fine cultivated country on each hand, and the thriving policy around Lord Fife's house, all starting into view at once, lend each their beauties to form an enchanting prospect. The wearied traveller, jaded with the rough roads through which he has passed, now enters a flat country, where corn is waving on every ridge, and commerce extending its influence, to render the people comfortable and happy.

Before entering Banff, we crossed the river Doveran, (the boundary between Aberdeen and Banff-shires,) over which an elegant bridge is built, we believe, at the expence of Government. Banff is a thriving well-built town; has several enterprising and public-spirited merchants; one of whom, Provost R. is celebrated for his extensive knowledge in almost every branch of trade, and possesses a considerable influence both in the town and country. The salmon-fishery, at the mouth of the river, forms a valuable export article; and much corn is shipped from this place in ordinary seasons. In walking through Lord Fife's policy and plantations, adjacent to the town, we saw the finest Poland oats that had come under our view this season; indeed, they had received benefit from the extreme drought, and carried the prospect of yielding an immense return.

To *Cullen*, 12 miles. The Earl of Findlater's estate begins at Banff, and stretches some miles farther than Cullen. The day was unfavourable when we viewed it, but, so far as we could judge, it appeared cultivated in a stile superior to the common run of estates, and resembled a garden more than any tract of the same extent to be seen in Great Britain. The breadth of the low-land betwixt the hills and the Moray Frith is not great, perhaps not exceeding three miles; but the calculation is made at random, as the weather was foggy when we passed. The late Earl, whose memory will long be respected by every well-wisher to his country, was the person who planned, and, in a manner, executed these

beneficial improvements, which have now reached maturity. He took some of the farms into his own hand, (we believe in 1754;) brought overseers from England, well acquainted with improved husbandry; inclosed his lands, and set a pattern to his tenants which was soon widely imitated.

We have always viewed the conduct of proprietors, who were inattentive to the welfare and prosperity of their estates, as not only hurtful to their own private interest, but to the public good. In many parts of Britain, where the tenantry are possessed of sufficient capital, improvements are executed perhaps as judiciously, and at less expence, than when performed under the proprietor's direction, or those appointed under him; but, in every district where the possessors of land are defective in capital stock, it is impossible they can accomplish such undertakings; nay, the very attempt is often attended with certain ruin; for, the funds which ought to be used in cultivation, are thus directed to other purposes (which necessarily causes a loss in the first instance) while the profits of the improvements attempted, are contingent and hazardous, and, at all events, are not immediately reaped. Many proprietors will not contribute a halfpenny to forward the most necessary works; others are limited and discouraged by entails, from expending money themselves, or from giving encouragement, by suitable leases, to proper tenants; the consequence unhappily is, that much of the country remains in a comparatively unproductive state.

Cullen is a borough of little business, dependant upon Lord Findlater. The burgesses possess a considerable field of fine land adjoining the town. Barley and oats are the chief grains sown in this county: little wheat is cultivated, from an idea very generally entertained, that the climate is too late for it: very few pease or beans, though the soil seemed well adapted to what is called the six course shift. Turnips are cultivated in considerable quantities; and some of the grass fields appeared well laid down. *Big* has disappeared since we crossed the Doveran, and barley appears in place of it. Lord Findlater's policy, close to Cullen, is beautiful; but the house is old fashioned, and has not, we believe, been inhabited by the family for several years. Between Cullen and *Fochabers* there is another large peat manufactory, but not so extensive as that mentioned in part 2d of this tour. As we advanced westward, the soil became more sandy and barren, and *big* again appeared. About *Gordon castle*, there are extensive grass lands, and the house itself may be the residence of a

prince; indeed, few princes are so well lodged. The castle, though built at different periods, has a modern appearance. The old town of Fochabers is now removed, and a neat village built at the distance of half a mile from the castle.

Leaving Fochabers, we crossed the Spey, and entered the county of *Moray*. That river rises on the borders of Lochaber, has a very rapid course, and, after flowing for ninety miles through the districts of Badenoch and Strathspey, falls into the Moray Firth a small distance below this place. As there is no bridge so far down the river, though few places stand in greater need of such a convenience, travellers are generally obliged to pass it in a boat; but, at this time, the stream, from the continued drought, was very small, and fordable without the least danger*. When the Duke of Cumberland's army crossed in April 1746, a few days before the battle of Culloden, the men waded through, shoulder-deep, carrying their arms above their heads. It was in a great measure owing to the Highlanders neglecting to defend the ford, that the future success of the Royalists may be attributed.

The low part of Moray is a district of great value and importance, resembling the fertile county of East Lothian more than any other we have seen. A fine firth forms its northern boundary, while a range of black hills, few of them cultivated, hang upon the southern extremity. In these circumstances, East-Lothian and Moray bear a striking affinity; as also, in enjoying a dry climate and fertile soil: perhaps, in both respects, Moray exceeds East-Lothian; for many of the inland parts of the latter are incumbent upon a colder subsoil than any we saw in Moray. We had often heard favourable accounts of the husbandry practised here, and were led to form expectations which were not completely realized. The season, indeed, was unfriendly to the growth either of corn or grass upon dry soils; and to this, a part of the deficiency of the crop may with justice be attributed; but, the general system seemed imperfect, and ill calculated for such soils as prevail in this county, as shall afterwards be more particularly described.

To *Elgin*, 9 miles. The soil, from the Spey westward, is chiefly of a sandy nature; the crops were very indifferent, till we arrived in the neighbourhood of Elgin. Much woodland upon the road-side. Both wheat and rye fields were

* Since the above was wrote, we learn with pleasure that the foundation-stone of a bridge over Spey has been laid by that worthy young nobleman the Marquis of Huntly.

now discernable; but few turnips, though the soil seemed admirably calculated for this root.

Elgin is an ancient town, situated on the south bank of the Lossie. Little business of consequence appeared to be transacted here: a similar remark is applicable to every place where agriculture forms the chief object in the neighbourhood. We here experienced the utmost politeness, from a gentleman to whom we were recommended, who kindly accompanied us in viewing the adjacent country.

To *Lossie-mouth*, 6 miles. This is the sea-port of Elgin, from whence, in favourable seasons, a considerable quantity of grain is exported, and coals and other articles received in return; but the harbour is far from being convenient, or safe. Betwixt Elgin and Lossie-mouth there are several extensive fields entirely covered with stones, which, tradition says, were left by the Spey; it being supposed that this river, at a former period, had taken its passage in this direction to the Moray-firth. Be that as it may, these stones greatly resemble such as are thrown upon the banks of the present channel. Some attempts have been made to plant the ground so covered, with Scotch firs; but little success has attended this well meant measure. The land adjoining the town of Elgin is very valuable. At Lossie-mouth, we were recommended to the attention of a gentleman of great urbanity and information; in whose company we satisfactorily inspected a considerable tract of the neighbouring country. The soil here is chiefly a sand, or soft loam; and, from the accounts communicated, the crops of every kind were much inferior to what they are in common years. We were led to give full credit to these accounts; for, the theory of husbandry seems here well understood, while the execution is conducted upon sound practical principles. The different fields were in good order; and no expence appeared to be with-held, in carrying forward every branch of improvement, consistent with the local circumstances of the district, to be afterwards mentioned.

From *Lossie-mouth* to *Forres*, 18 miles. Past the west side of Spynie-loch, which is already partially drained, and an attempt is soon to be made to drain the whole, in an effectual manner. The loch contains, at least, 1500 acres of rich soil, which, when completely drained, will prove a most valuable property. The house, or palace of Spynie, formerly the residence of the bishop of Moray, is situate upon the south bank of the loch; and, when entire, must have been

an elegant and stately building. This bishopric was, we believe, one of the best in Scotland; for, in 1563, when an account was taken of ecclesiastical benefices after the Reformation, more than 1200 bolls of barley, besides wheat, oats, and money, were given up, and recorded in the book of Assumption, as forming the temporalities of the bishopric; notwithstanding that much of the revenue was previously dilapidated by the bishop, who had seen the gathering storm.

We viewed the estate of Gordonston, which, from certain circumstances, has, for some years past, been out of lease; and are sorry to say, that the greatest part of it appeared to be in wretched condition. The soil is, in general, of good quality; but the farms are by far too small; while, from the dependent state of the tenantry, the buildings are in a very ruinous state. It is to be hoped that the respectable gentleman, now secured in possession, by the decision of the Supreme Civil Court, will adopt the necessary measures for improving this valuable estate. If we might presume to offer a remark, it would be, that the whole property should be arranged into sizeable farms, and comfortable and convenient home-steads built upon each. There are plenty of good tenants in Moray; and such will be required, before lands, so exhausted, can be properly prepared, and brought under suitable cultivation.

Getting into the great road from Elgin to Forres, the soil appeared chiefly to consist of dry, barren sand; but, between the road and the Moray-Frith, we were informed that it was more valuable, being of a strong cast, and much of it adapted to wheat and bean husbandry. Great damage has been sustained, at different periods, in this low tract, from the barbarous practice of plucking the bent-grass upon the sea shore, which permitted the loose sand to blow in high winds, to the great detriment of the adjoining lands. Several hills, upon the side of the Frith, appeared to be composed entirely of sand, and, during a north or north-west gale, we should think them very dangerous neighbours.

Around *Forres*, the soil is good, and decently cultivated. Most of the ground here is inclosed, and the fields have a pleasant appearance. Perhaps the climate of this neighbourhood is earlier than in any part of Scotland,—even than the fertile and well sheltered banks of the Tweed; at least, every article of produce seemed further advanced than we had witnessed in our progress; and, so long as we remem-

ber, the first newspaper intelligence, respecting the harvest, has always been from this ancient royal burgh.

To *Nairn*, 11 miles. This is another *royal* burgh; notwithstanding which, it is a very poor place: there we observed the first appearance of real distress, from the severe scarcity of grain; the lower order of the inhabitants having a squalid, emaciated look, exceeding any thing we had hitherto seen. This place may be considered as the march between the English and Erse languages; at least, we did not notice the latter earlier in our progress. A great proportion of the land, between Forres and Nairn, is of an inferior quality, and the houses wretchedly constructed. A fine bridge, over the water of Findhorn, has been lately built by that able engineer Mr Burn of Haddington, who has been extensively employed in all the northern counties.

The roads through Moray and Nairn shires are generally level; but having said this, circumstances preclude us from adding more in their commendation.

Before entering the county of Inverness, it is proper to wind up our details of Moray and Nairn shires, with a few concluding remarks. We offer them with diffidence, but trust that they may, in some respects, be useful to the tenantry, and especially to the proprietors of these districts.

The soil of the lowlands, or what is commonly called the plains of Moray, may be classed under two distinct heads; viz. sand and clay. The sandy soils are generally two or three feet deep, incumbent on free-stone or gravel; and consequently, like all soils of the same kind, require to be often refreshed with moisture. The clay soils are strong and deep, and qualified to produce heavy crops, both of corn and grass. As the climate is remarkably dry, (less rain falling here than in any part of Scotland), it is obvious that a moderate wet summer is necessary to ensure a good crop, and that even the wettest season is more beneficial, under local circumstances, than one of a severe, or even of a meddling drought.

Agriculture was at a distant period successfully practised in this district, and perhaps a comparatively improved husbandry was earlier introduced than in any other part of Scotland, north of the Grampian hills. This early introduction of improvements may be assigned as the cause why the practice of the country has been so long almost stationary, or at least why it has not kept pace with that of other countries, much further behind, a century ago. As the land

pays a tolerable rent in its present state, the proprietors seem satisfied with things as they are, without attempting to introduce a better system of agriculture, or, by giving leases of a proper length, to afford such encouragement as will stimulate tenants of capital and enterprise to undertake the arduous task of executing improvements at their own expence. The apathy of the proprietors is strikingly discernible, in the general meanness of the farm-buildings, which, in this district, (holding its value in view), are meaner and more inconvenient than in any agricultural district of the island.

The improvement upon the practice, that would be attended with most advantage to those concerned, is, a general introduction of the Norfolk husbandry upon all the light soils, (with some it is done already), and adopting the six course shift upon the clay; viz. fallow, wheat, beans, barley, grass, and oats. If proper leases are granted, (which is a preliminary step), comfortable accommodations provided, good roads made, and suitable rotations of crops introduced, we venture to say, that no district in Britain may make a better figure in agriculture than the county of Moray.

The following paragraph, written at Forres, is copied from the journal kept during our progress. It was written on the same day that we viewed the principal part of the district, when the impression thereby made on our minds was fresh, and unconnected with extraneous circumstances: "Moray has not yielded us so much satisfaction as expected. The crop is light, which may be imputed to the drought; but a great proportion of the land is foul, and not kept under any regular rotation. Very few sizeable fields of grain are to be seen, the land chiefly lying in irregular patches, and not much clover sown. Great blame falls upon the proprietors, for neglecting these matters, as they hold out no encouragement to the tenantry for enclosing, building, or for meliorations. The roads are worse, the farm-steadings more inconvenient, and, in a word, fewer improvements are going forward here than in any county we have visited. Few sheep are kept: nor did we see many cattle. The whole attention of the farmers seemed paid to the raising of corn, without using the necessary means for accomplishing it in an advantageous manner. There are no doubt exceptions to these general remarks, and we could, with pleasure, point out the meritorious conduct of individuals, were it necessary to enter upon particulars."

From Nairn to *Inverness*, 16 miles. Roads excellent, particularly the military one from Fort George. The land, for 7 or 8 miles eastward of Inverness, is generally of a good quality; carrying barley and oats, a few bad pease, and some rye. No clover, except in the vicinity of the town, where it is excellent. Little summer fallow; but a considerable breadth of potatoes, which appeared to be thriving. Saw some small flocks of sheep, tended by women.

Much room is left, in all this tract, for improvement; and, in our humble opinion, the soil and climate of the low district are well calculated for admitting every branch of modern husbandry, provided a respectable tenantry were more generally introduced. Long leases are necessary at the outset, for the encouragement of such people; but, improvements being once set agoing, the country would gradually be brought into regular cultivation, without any expence to the proprietors; unless in the articles of building and inclosings, which, being permanent improvements, should always be executed solely at their expence.

Having now arrived at the Highland Capital, it may be proper to suspend the remainder of our tour, till next number; when, after visiting the counties of Ross and Cromarty, we will take the Highland road homeward, through Strathspey, Badenoch and Athol, and from thence through the upper parts of Perthshire, to Stirling.

Communications on American Husbandry.

(Continued from p. 169.)

A Description of the Township of Dartmouth, in the State of New-Hampshire.

This township is situated about 60 miles from the sea, and 4 miles south of the great river Connecticut, which is the western boundary of New-Hampshire, and contains about 24,000 acres of land, owned wholly by one proprietor, except 20 lots containing 100 acres each, which are owned and occupied by 20 families, who were placed there by the proprietor of the township. The neighbouring country is settling very fast, and the great road leading into the back-country, passes through this township. It is composed of a soil, excellent for producing every kind of corn, especially wheat; also for grass, flax, and hemp; it is accommodated with streams for mills, and a river running through it; which, by the annual overflowing of its banks, yields an inexhaustable fund of

manure, enriching the neighbouring intervale lands bordering on its banks, which are extensive, and equal in quality to any in the country. In this township, the proprietor has 3 farms under improvement; one of which now yields 120 tons hay, —has a large stock of horned cattle, sheep, &c. One other farm that yields 40 tons of hay; and the third yields 30 tons, and all of them capable of any further improvement; and of raising any quantity of wheat that the cultivator may chuse. A saw mill, and a grist mill also, are there, belonging to the proprietor. This township is capable of making 200 farms of 100 acres, or might be divided otherwise into larger farms as may suit the owner.

This tract, with 12,000 acres more, adjoining to it, may be purchased on reasonable terms, or the one half of it, provided the purchaser would carry it on in a manner agreeable to the present proprietor, who would, in that case, hold the other half,—dividing the whole, both improved and unimproved. This purchase is well calculated for any gentleman who may have views of an extensive cultivation, unembarrassed with disagreeable co-partners, in which he might be assured of his interest being doubled in value in a very short time, with the addition of the interest of his money.

Farms under improvement in this part of the country, when there are 50 to 100 families settled in the town, are sold at 2 to 4 pounds per acre; yet the cost of bringing them into improvement is inconsiderable, and, saving the cost of buildings, are attended often with a profit, even in the first year's produce—that is, the first year's produce over-pays the whole expence of clearing the land, which may be seen in the experiments actually made in this Township, in Nos. 1, 2, 3, and 4. In No. B. may be seen a calculation of making a farm of 200 acres, according to the method which is practised here.

Experiment, No. 1.

Account of felling, clearing, planting with Indian Corn, and sowing with Wheat and Hay Seed, 7 Acres of Up-land, in the Township of Dartmouth, in the State of New Hampshire.

1779.				*Sterling.*	
June.	Cost of felling 7 acres, at 6s. 9d. per acre			L. 2	7 3
1780.					
May.	Cost of cutting up and clearing 49 days work, at 2s. 3d. - - - -			5	10 3
	Planting with Indian corn, including the seed			1	6 3
				L. 9	3 9
Aug.	Sowing the above land with wheat, viz.				
	7 bushels wheat for seed	L. 1	11 6		
	Hay seed - -	1	8 0		
	Labour of sowing and covering wheat and hay seed -	3	7 6		
				6	7 0
				L. 15	10 9
	Profit			31	19 9
				L. 47	10 6

Produce, viz.

1780.			*Sterling.*	
Oct.	Crop of Indian corn, 240 bush. at 2s. 3d per bush. - - - -		L. 27	0 0
	Deduct for expence of harvesting -		4	0 0
			23	0 0
1781.				
Aug.	Crop of wheat, bushels, 134			
	Deduct for reaping, threshing, &c. - 25			
	109 nett, at 4s. 6d.		24	10 6
			L. 47	10 6

In this instance the season for clearing, by burning the wood and brush the first year, was favourable, and the crop of Indian corn good; but the crop of wheat was but indifferent, owing to some accidents that befel it.

EXPERIMENT, No. 2.

Cost of Felling and Clearing Fourteen Acres of Up Land, and Sowing it with Wheat and Hay-Seed, in the Township of Dartmouth, in the State of New Hampshire, from the year 1780 *to* 1782, *and its produce.*

1780.		*Sterling.*		
June.	Felling 14 acres, cost 6s. 9d. per acre	L. 4	14	6
1781.				
May & June.	Burning and clearing ditto, cost	10	10	0
Aug. & Sept.	Sowed 14¼ bushels wheat, at 4s. 6d. per bushel	3	5	3
	Hay-seed sowed, viz. clover and herds grass	2	5	0
	Labour in covering the seed and sowing	6	10	6
	Fencing	1	2	6
		L. 28	7	9
	Profit	27	17	3
		L. 56	5	0

1782.	PRODUCE, viz.			
Wheat,	bushels 296:			
Deduct for reaping	14	} is	46	
Housing and threshing	32			
	Nett 250 at 4s. 6d.	L. 56	5	0
		L. 56	5	0

In this experiment, our mode of raising a crop of Indian corn was not practised, but put into wheat and hay-seed immediately after clearing: This was done, because the spring of 1781 was too wet to burn and clear the land in time to plant Indian corn, which should be in May; but, in this instance, a profit was obtained of 27l. 17s. 3d. in an outset of 28l. 7s. 9d. and 14 acres of wilderness land converted into grass, suitable for pasture or mowing, that would yield 14 to 20 tons of hay per annum. Had a crop of Indian corn been also taken off, the profit would have been still greater. In the same plantation, many tracts have been treated in the same way, by taking off a crop of Indian corn and another of wheat, and then laying down to grass: But, in this and No. 1. more accurate accounts of the cost and profit have been kept. These may serve as specimens for the information of those who may wish to know our method, and the cost of bringing land into cultivation.

EXPERIMENT, No. 3.

Cost and Profit of Clearing and Sowing with Wheat 10 *Acres of Intervale Land, in the Township of Dartmouth, in the State of Newhampshire, in the years* 1777, 1778, *and* 1779.

			Sterling.		
1777.	Cost of felling and clearing 10 acres, 100 day's labour, at 2s. 3d. -	L.	11	5	0
1778.					
May	Ploughing the same with 4 yoke of oxen and 3 men, 12 days at 15s. 9d. per day		9	9	0
	Harrowing with 3 yoke of oxen and 2 men, 5 days, at 11s. 3d. - -		2	16	3
July	Ploughing the second time, 3 yoke of oxen and 2 men, 9 days, at 13s. 6d. -		6	1	6
	Harrowing the second time, with 3 yoke of oxen and 2 men, 4 days, at 11s. 3d. -		2	5	0
Aug.	10 Bushels winter wheat, for seed, at 4s. 6d. - - -		2	5	0
	Sowing the seed, and harrowing the last time, to cover it - -		1	10	0
			35	11	9
	Profit	L.	41	1	3
		L.	76	13	0

1779.						
Aug.	PRODUCE; viz.					
	Wheat -	390	Bushels.			
	Deduct for reaping, housing, and threshing -	50				
	Bushels	340	Nt. at 4s. 6s.	76	13	0
				76	13	0

This piece of land happened to be very stubborn, and required a greater strength of cattle to plough it than is common. But it yielded well at 39 bushels per acre; we call it a good crop at 20 to 30 bushels per acre. In this instance, we see 10 acres reduced from a state of nature, ploughed and sowed with

wheat, for the cost of 35l. 11s. 9d., and the first crop taken off, overpays the cost, and leaves a profit of 41l. 1s. 3d. This piece of land was sowed with summer-wheat the three succeeding years, and then laid down to grass, and yields 3 tons of hay per acre, at one cutting. Intervale land is, generally, after first or second crop, very easy to till.

EXPERIMENT, No. 4.

An Account of the Cost of Clearing 5 Acres of Intervale Land in the Township of Dartmouth, and of 4 years Cultivation, with the Value of the several Crops taken off.

		Sterling.
1776.	Cost of felling 5 acres, and clearing up the same, it being thinly timbered	L. 4 10 0
1777.		
May.	Ploughing ditto with 4 yoke of oxen, 2 men and a boy, 6 days, at 15s. per day	4 10 0
	Harrowing with 3 yoke of oxen, and 2 men, at 11s. per day - -	1 13 0
July.	Ploughing the second time - -	3 15 0
Aug.	Harrowing the second time -	1 4 0
	5¼ bushels winter wheat for seed, at 4s. 6d.	1 3 7
		L. 16 15 7
	Profit,	9 19 11
		L. 26 15 6

1778.	PRODUCE, viz-			
	Wheat -	141 bush.		
	Deduct for reaping	5		
	For housing, &c.	3		
	For threshing	14 — 22		
	Bushels	119 at 4s. 6d.	L. 26	15 6
			L. 26	15 6

In this experiment, a profit of 9l. 19s. 11d. Sterling is given in the first year's crop, besides reducing 5 acres of land from its natural to a state of easy cultivation. The following will show the cost and profit in cultivating the same piece of land till it was laid down to grass.

1779.					
April.	Ploughing with 3 yoke of oxen, 2 men and 1 boy, 4¼ days, at 11s. 3d.		L.	2	10 7
	Harrowing with 2 yoke of oxen, and 1 man, 2 days, at 6s. 9d.			0	13 6
May.	6¼ bushels summer wheat sowed, at 4s. 6d.			1	8 2
	Harrowing the second time to cover the seed			0	13 6
				5	5 9
	Profit			17	11 0
			L.	22	16 9

The land had only one ploughing this year: the stubble should have been ploughed in the preceding fall, after taking off the first crop of winter wheat; but, for want of time, through scarcity of labour, it was neglected, to the hurt of the crop this year.

Aug.	Produce of summer wheat 122 bushels				
	Deduct for reaping 6¼				
	Threshing, &c. 14¾				
		20¼			
	Nett produce	101¼ at 4s. 6d.		22	16 9
			L.	22	16 9
Oct.	Ploughing		L.	2	5 0
1780.					
April.	Ploughing again			2	0 6
	Harrowing			0	10 6
	10 bushels flax-seed sowed, at 4s. 6d.			2	5 0
	Harrowing to cover the seed			0	10 6
				7	11 6
	Profit			32	12 6
			L.	40	4 0
Oct.	Produce in flax	2144 lbs.			
	Deduct the cost for pulling, rolling, and dressing	1072			
	Nett produce	1072 at 9d		40	4 0
			L.	40	4 0

This year, flax was in great demand: the usual price is 4½d. to 6d. per lib. The seed of this crop was lost by accident, and therefore not credited.

1781.						
April.	Cost of ploughing, harrowing, and sowing 10 bushels of pease and 25 libs. of clover and 1 bushel of herds grass or foxtail			L.	6	13 10
		Profit			26	7 8
				L.	33	1 6
Aug.	Produce of pease	157 bush.				
	Deduct for harvesting, threshing, &c.	10				
		147 at 4s. 6d.		L.	33	1 6
				L.	33	1 6

AGREGATE.

Profit of 1st year	L.	9	19 11
Ditto of 2d ditto		17	11 0
Ditto of 3d ditto		32	12 6
Ditto of 4th ditto		26	7 8
Total profit of 4 years	L.	86	11 1

The foregoing is the result of an experiment actually made on 5 acres of land in the Township of Dartmouth, being on that kind of land which is called *intervale land.* The soil of this intervale is composed of the washing of high lands, and is extremely rich, and the soil is often 4 to 10 feet deep.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On the Means of encreasing the Quantity of Manure, the Use of Lime on different Soils, &c. &c.

June 4. 1801.

GENTLEMEN,

In compliance with the request of your correspondents, 'A Novice,' and 'W. C. of Aberdeenshire,' I beg leave to

communicate my sentiments on raising and using dung, and on the application of lime. In doing this, however, I beg it may be understood, that I am far from thinking myself able to give such complete information as these correspondents, and the readers of your Magazine, expect; but as I, in common with many others, ardently wish for information on these very important subjects; and as the request of W. C. has not, by any communication in your last Number, been complied with, these observations may be the means of forwarding and extending their discussion by men better qualified for the task. If they have this effect, my object will be gained. With regard to raising a great quantity of dung upon a farm, I think very proper methods are recommended by your correspondent C., at page 402 of your 4th Number: But, as the earth returns with interest every good committed to her care, and as I am persuaded that nothing can be committed to her, for which she will make a greater and more profitable return than good manure, every nerve should be strained to encrease its quantity as much as possible. For that purpose, in addition to what is recommended by your correspondent C., I would advise the collecting as great a quantity as possible of ferns, rushes, and the coarse grass of bogs, &c. even when unfit for hay. In many situations where these articles are plentiful, they are suffered to go to waste, though they may be used with great advantage for littering the stables and fold-yards. Ferns and rushes do not rot so soon as straw, but make a rich manure, and, if well turned over in the spring, are sufficiently rotten in June. In winter and spring, when dung is taken from the stable or fold-yards to the fields, I conceive it is better to throw it up with forks, than allow the carts to be taken upon the dung-hills, a practice which prevents a speedy or complete fermentation. At these times, I have frequently mixed with the dung considerable quantities of rich earth *, taken from old

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* Note by the Conductors.

The practice of mixing earth with dung requires to be managed with a delicate hand, especially in forming a dung-hill with materials that have not been previously subjected to fermentation. The ingenious Author of this communication appears to be aware of the mischief arising from driving carts upon dung-hills, which, by pressing and consolidating the mass, greatly retards, and, in some instances, almost entirely prevents fermentation. The same injury is done by mixing any considerable quantity of soil with dung in an unfermented state, which, by pressing the straw and other matters into a small space, so effectually excludes the air, that the dung, at the distance

dikes, sediment of ponds formed by running water, and such other places as were most likely to afford it, well mixed with fresh or dissolved vegetable matter. Upon light gravelly hills, or sterile clay, I have found manure thus mixed particularly useful. The rich earth alone would no doubt have very much improved such ground, but, by being mixed with dung, it probably became impregnated with something of a fertilizing nature, which would otherwise have been lost.—Instead of mixing as above, I have occasionally laid the earth a foot or two deep, as a foundation to build dung-hills upon; at other times, I have laid it in situations where I could easily convey the drainings of fold-yards or the urine of fat cattle into it, and have no doubt but considerable advantages may be reaped from these methods of encreasing the quantity of manure. 'A NOVICE' probably thought it right to say something to warrant his using that signature, and, accordingly, towards the end of his letter, has asked, Whether dung should be rotten e'er it be ploughed in? or, whether, as he has sometimes done, it should be ploughed in rank, and suffered to rot in the ground? I think the latter very improper management, but it is no doubt pursued by some farmers, who do not hasten putrefaction by leading out and turning, not only because these operations are troublesome and expensive, but because they believe that the quantity of dung is thereby lessened. They certainly lessen the bulk, but probably not the quantity of *good manure*. Perhaps they

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distance of several months, will be found in a state very little different from what it was when put into the heap; after all, when it is, in common language, said to be rotten, it is, upon examination, found to be only decayed, and the produce, in place of abounding with rich mucilaginous substances, which all well-fermented dung does, is found to consist almost entirely of vegetable earth. There is, however, a mode of applying earth to dung-hills, that is not only safe but highly beneficial: It consists in covering the whole surface of the dung hill lightly, either with common earth or broken peat, every time the stables or fold-yard are emptied; a covering of that kind not being heavy enough to press materially upon the mass, does not retard the fermentation, and has the great additional advantage of preventing the loss daily sustained about most farms by evaporation, and the dissipation of the greatest part of the valuable gasses generated during the process of fermentation, all of which are entangled and retained by the earth; which, by that means, not only acquires high fertilizing powers, but renders the dung more valuable. When a proper system is followed of carrying out the manure from the stables and yard to the dung-hill—say once a-month, if it is spread equally over the whole, and a covering of the kind mentioned laid above it, a considerable addition may be made to the quantity of manure upon every farm yearly, not only without risk, but with very great advantage.

prevent the loss of some very fertilizing particles, which are exhaled by the solar heat, or otherwise injured by the weather, when the dung is applied in its rough state, and consequently not properly covered in. There can be no doubt of a small quantity of rotten dung making land more productive, than a much larger one rough or half-rotten. On the slovenly and unprofitable practice of applying it in this state, more may be said; but I shall not insult your understanding by dwelling longer on the subject.

As little time as possible, I think, should elapse between the spreading of the dung and ploughing it in; and between the last operation and the sowing of the seed. The mode of application suited to one kind of soil, may be of no use, or even injurious to another; and, as there is reason to apprehend that much valuable manure is misapplied, we should carefully compare the results of different modes of practice, endeavour to learn the food of vegetables, and how the application of manures to the different soils is calculated to increase that food, and furnish the necessary support to the plants. Some have asserted, that earth is the food of plants; others, water, and others, that it is principally oily particles incorporated with water. If we consider that earth *alone* will bring no plants to perfection, we will readily be convinced that it is not the food we are in search of. Some plants will flower in water, but they will not produce seed; and, I believe, the same may be said of oil. Some practical men, as well as theorists, are of opinion, that earth and water, pure and unmixed, will not invigorate and bring to perfection even a very inferior crop; and others contend, that oil cannot be concerned in vegetation, because it will not mix with water, and enter the vessels of vegetables, &c. It will however enter these vessels, and become well adapted to promote vegetation, by the intervention of alkaline salts or absorbent earths. Of this last class, lime is the most powerful; and speedily incorporates oil and water, thereby producing a mixture similar, in appearance, to that milky liquor formed by the farinaceous part of corn soon after germination. It also possesses an attractive and retentive quality. Mons. Fourcroy, in his chemistry, says, that it attracts moisture and carbonic acid from the atmosphere. I am induced to think that oil is a principal part of the food of plants, by considering, that the chemical analysis of soils has proved that they contain it;—that all vegetables, corn, and other seeds, contain it, and that those crops which produce the most of it, such

as hemp, flax, rape, mustard, turnip seed, &c. are the greatest impoverishers of land. If oil be not concerned in vegetation, why do the best agriculturists reckon so much on those rich manures which are known to contain most of it, such as rape-dust, hogs dung, the refuse of shambles, &c.? Corn, it is well known, contains much oil, and, is not this the reason why the dung of corn-fed horses is so remarkably fertilizing? Let us suppose the food of plants to arise entirely, or in a great measure, from oily particles, incorporated with water in the earth; that water is the vehicle of nourishment; and then try how this hypothesis will stand the test of experience. If it is not supported by this test, it is ill-founded, and must be renounced; in which case, I hope some person will supply its place with a better, and that you will publish it in your magazine. When I have admitted oil to be the principal part of the food of plants, I have reasoned thus with respect to the application of lime and dung to land which has been long in tillage, and limed every fallowing; viz. as the water and oily particles in the land will not mix with alkali, or absorbent earth, as lime greatly extends this operation, and as it has, on this land, been so often applied alone, is it not reasonable to conclude, that its operations on the oleaginous matter have stimulated, so as to affect the almost total absorption of the oily particles, leaving the land nearly a *caput mortuum?* Here I must remark, that, during a pretty long practice, I have invariably found land, managed in the way I have just described, not at all increased in fertility by lime, and almost useless for the growth of corn. Upon such lands, deprived of their oily or fertilizing particles, by the qualities of lime causing them to be conveyed so repeatedly and largely to the support of crops, is it not rational to suppose, that the application of rich, oily manure, such as putrid dung, &c. is the most likely way of renovating this exhausted soil, and of restoring its productive powers? Accordingly, upon such soils, I have invariably found dung the most beneficial manure, and that, after a copious application of it, lime again became of some use. In soils which have been but a year or two in tillage, after having been long in pasture, and which, of course, contain much vegetable and oleaginous matter, lime must, according to this hypothesis, be a proper manure, in assimilating the vegetable and oily matter, so as it may be applied to the support of the crops. In such cases, and especially in light soils, I have always found lime

a most powerful and beneficial manure; and dung *alone*, improper. In further support of this, I shall state a case or two, which I consider as evidently decisive of the utility of lime. A considerable quantity of fresh, light, land, which contained much undissolved vegetable matter, was ploughed in autumn, having, for the first time, been all limed in the preceding year, except a large stripe across the ridges. The June following it was prepared for turnips, and all dunged. The crop was pretty good, except upon this stripe, which brought no turnips to perfection.

In 1796, a field of light gravelly land, which had been long in pasture, and had received but little, if any, lime, was broken up, and sown with oats. In the autumn of that year it was ploughed, and partly limed. In June following, a part of that land which received no lime was prepared for turnips, with that which had. The whole was similar in soil, and equally dunged, ploughed, and sown, in the same kind of weather; yet the turnips and corn upon the limed land were superior to those upon the land which received none. The grass upon the former is very much superior, preferred by the cattle and sheep, and distinguishable at a great distance, by its healthy colour. Upon such soils as these, I apprehend, the good effects of lime will be conspicuous; but they are also very discernible, even upon soils which are limed every fallowing, if the ground be kept a few years in grass between fallowings, and especially when dung is applied with the lime. Although I am not quite so confident as to the utility of lime upon strong, as upon light lands, yet if the former were fresh, and contain much vegetable matter, or have been well dunged, I conceive lime may be applied with considerable advantage; but, considering their adhesive nature, and that lime, besides its other operations, should (by the dissolution of the vegetable matter, and consequent fermentation) divide the *tough* clay, much more is required, probably, than is generally applied. I entertain an opinion that lime divides strong land, and mechanically binds light soils, and that these operations contribute to the fertility of both. In the first, it opens an easier passage to the manure, and the fibres of the vegetables; and, in the last, it prevents the exhalation of moisture, or fertilizing particles. If we here consider its attractive and retentive qualities, we will have several reasons for the good effects it produces, and for the grass on such lands as have been well limed retaining its verdure much longer than that upon lands which

have received but little or none. The difference in the colour of the grass is in favour of light fresh soils, upon which I have observed so many striking instances of the good effects of lime, that I think it may be pronounced the *ne plus ultra* of their improvement.

In proof of what I have stated, as to liming *heavily* on strong land, I shall state the following case: A field of mine (which had before been limed) was ploughed, after having been about ten years in pasture. After producing first a culmiferous, and then a leguminous crop, it was fallowed, and sown in a favourable season. I applied to it about 250 Winchester bushels of shell-lime per acre, but no dung; the crop of wheat was upwards of 40 Winchester bushels per acre, though the land was wet, of a very inferior quality, and much mixed with poor blue clay.

I think, if the lime be of good quality, the quantity should vary (with circumstances) from 96 to 250 Winchester bushels, and that the quantity of dung should be from 16 to 40 (two horse) cart loads per acre. I have no doubt of the application of both lime and dung for the same crop, being, in general, the most advantageous way of manuring. It is consistent with my hypothesis, and with almost all the practice I have ever observed.

There seems some different opinions amongst farmers, as to the proper time of applying lime, and also as to the state in which it should be applied. Some contend, that the best time to apply it to dry land, intended for turnips, is in autumn. Others prefer May and June; and several farmers assert, that applying it even after it is almost so wet as to be fit for mortar, is not at all injurious to any quality of lime; while others maintain, that it is then nearly useless. I am not quite of this opinion, though I think the application of it in that state detrimental to some of its properties. I have found, by experiments, that after being in the land, and exposed to the rains and frosts of winter, it still retains the quality of incorporating oil and water, and that lime-water alone will produce that union, though not so speedily, as when all the component parts of lime are used.

To extend the system of keeping soils fresh, by an alternation of grass and tillage, seems to be the best way of promoting the interest of the landlord, the farmer, and the community; as, on such, it appears that manures are applied with greater effect and advantage. By such alternation, the lands in this part of the country are kept fresh; and it is, in

a great degree, owing to this, that they produce so well, and bear such high rents. These rents assist in defending us against the introduction of that system of husbandry which is pursued in many parts of the kingdom, to the southward of us, and which appears to proceed from a greater attachment to the opinions and customs of our ancestors, than we can here afford to entertain. I am yours, &c.

A NORTHUMBERLAND FARMER.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Comparison between Large and Small Farms.

GENTLEMEN,

IF you think the following remarks and contrast between a large farm and a small one, worth inserting in your valuable magazine, you may give it in your next number. If it had been done by a better hand, it would have been more acceptable in this part of the country.

That large farms tend to diminish the means of subsistence to the community, and thereby decrease the population of the country, is a position which, though advanced by many speculative individuals, seems now to be admitted to have no foundation in fact. But that a large farm employs fewer people to work it, than if it were divided into small ones, and by that means decreases the population, is a matter which seems to be more generally supported. To endeavour to refute the last of these assertions, I shall only draw the following contrast between a farm of 150 acres, (that size being understood a large one in this part of the country), and one of the sixth part of that extent, viz. 25 acres, (that being the favourite size here). This small farm of 25 acres is laboured with one plough, drawn generally by four horses of a small breed, or a proportion of horses, cows, and other young cattle; the occupier of the farm holds the plough, which is driven by one of the family, if any of them are capable of doing that work, which seldom fails to be the case, as boys or girls are understood to be equally qualified for the labour of the field. The wife of the farmer, in case of non-issue, or incapability of the children, is considered as obliged to undergo the drudgery of out-work. Upon such

farms there is little occasion for day-labourers, except an old woman or two, which they employ in the harvest. The blacksmith is almost the only mechanic they employ; and I actually know the harness-maker, the wright, and the shoemaker *, all united in the small farmer.

They, for the most part, live entirely upon the produce of the farm, and think they do well when they can, (in their own words) "live within themselves;" that is to say, when their own possession maintains them, without buying any thing. A farm then of 25 acres maintains only one family.

A farm of 150 acres will require 4 ploughs to labour it, of 2 horses each; these 8 horses require 4 men to work them; it will also require 2 men to thresh out the grain, and other bye-jobs, besides day-labourers, employed in hay time, hoeing turnips, potatoes, &c. There is also work for a number of mechanics about large farms, such as smiths, wrights, harness-makers.

I shall state the people employed as follows:

Upon a farm of 150 acres,

	Families.
The farmer - - -	1
Ploughmen - - - -	4
Threshers, &c. - - - -	2
I shall state the different mechanics at -	1
Other day-labourers, occasionally employed -	1
Families	9

Upon 150 acres of land, divided into farms of 25 acres,

	Families.
Farmers - - -	6
Mechanics and day-labourers occasionally employed - - -	1
Families	7

Thus, then, a farm of 150 acres employs daily 9 families, whereas, if it were divided into 6 farms of 25 acres, would only maintain 7, allowing 1 family to every 6 farms, for me-

* They wear the kind of shoes called Brogues.

mechanics and day-labours, which is more than they do employ. As it is evident, a large farm must spare more grain than if it were divided into small ones, I shall not attempt to say any thing upon that head. A small farm, then, of the description mentioned, must be considered as a public loss; 1*st*, By diminishing the means of subsistence to the community; 2*dly*, By decreasing the population of the country, by employing fewer hands in agriculture; and, 3*dly*, By discouraging the mechanic, the manufacturer, and the merchant of every description.

I know the language of many is, " But who could be so " unfeeling as to dispossess these happy people, and force " them into another line of life; for certainly they must be " happy who, secluded as it were from the world, have no- " thing to think of but their own business.——They must " infallibly be contented!" These people however are deceived, for how can a man be happy or contented, that is obliged to undergo the hardest labour through the course of the whole year, and at the end have but a scanty subsistence?— and who is under the necessity of turning out his wife or daughter to drive the plough in the depth of winter! I say, again, How can a man under these circumstances be happy? Many a glowing picture has been drawn of the rural cottager, but how fallacious do such representations appear to those who are able to speak from experience.

I am, Gentlemen, your's,

A NORTH-COUNTRY FARMER.

PART II.

Review of Agricultural Publications.

Essays and Notes on Husbandry and Rural Affairs: By J. B. Bordley. Philadelphia: Printed by Budd and Bartram. Sold by Thomas Dobson, *South Second Street:* 591 *pages,* 8*vo.* 1799.

As this is the first American work upon Practical Husbandry which has come into our hands, we shall pay it some attention, though, from the mode of arrangement adopted by the author, the task of reviewing it is more burdensome than usually occurs with similar publications.

From the preface, we learn, that Mr Bordley's attention to agriculture was first excited by perusing the writings of Mr Tull; and that he is chiefly indebted to Mr Young, for his knowledge of European husbandry. 'On the turn of middle age, and whilst gradually quitting public employments, the author sat down on a farm in Maryland, and became enthusiastically fond of husbandry. Farmers in the neighbourhood informed him of their modes of practice; but they taught him nothing of the principles of the art. Whilst they knew how to practise in the manner common to the country, he knew neither principles nor practice; but began, however, with observing their practices, which he continued to imitate; until, gaining information from a number of instructive experiments, he was encouraged to deviate from some of them; and became more and more assured that great improvements might be made by professed farmers, in this first of all employments, if they could be brought to relinquish the worst of their habits.'

This extract will likely incline our readers to expect a good deal of speculation among the practical information that is copiously detailed; nor will they be disappointed. The chief part of the work is formed of little essays, occasionally written and dispersed among the author's friends: hence, a regular and perfect account of American husbandry is by no means communicated.

The first essay is *upon systems and rotations in farming business*, written for the benefit of a Mr Rigal, a gentleman from Manheim in Germany, who had taken a farm in the vicinity of Philadelphia. The leading outline of the essay is, that no kind of grain is to be cultivated upon the farm in question; no horse, ox, cow, nor other beast, pastured; but the whole to be laid off in rye hay, (not rye grass hay, but hay made from rye cut green), clover and timothy; and that the produce shall be constantly cut, and used for feeding animals in the house. A few acres are reserved for potatoes, garden ground, &c. which are to have no connexion with the other fields; but, even on them, no grain is to be sown. Perhaps a rotation, such as the above, might be profitable, for a while, in the neighbourhood of a great town; but, we suspect, the ground in a few years would run foul: at any rate, the want of variety in the rotation would sicken the crops, and curtail the produce considerably.

The next essay (it is difficult to say where the one ends and the other begins) is upon *grain rotations*. The author first gives what he calls *the English old course of crops*, viz. fallow, wheat, peas, barley; then the English *new course*, viz. barley, clover, wheat, clover, peas or beans; and afterwards draws a comparison betwixt the two courses, very much in favour of the latter. We by no means think that justice is done to the husbandry of England, by what is said respecting those rotations; nor do we entertain high ideas of the author's knowledge, when he recommends sowing clover amongst wheat which had succeeded a clover crop.

The *American old course of crops* follows next, which appears to have been, maize, wheat, and lea pasture. The crops mentioned are truly contemptible. Several *improved courses* are then stated, such as maize, pulse, barley, clover, wheat, clover. Likewise beans, barley, clover, wheat, clover, rye, clover; which, in our opinion, is an impracticable course, as clover would not grow (at least in Britain) if sown three times in seven years. In the arguments enforcing these improved rotations, our author appears to be an adept disciple of his two masters, Jethro Tull and Arthur Young, Esquires.

A particular design for a grain farm, written for Mr Rigal, when he thought of sitting down upon land at a considerable distance from town, now claims our attention. This farm is said to consist of 150 acres, of which the general division is, *homestead* 10 acres, *permanent meadow* 20 acres, and

and *land under crop* 120 acres. The rotation upon this last is pulse and roots as fallow crops, barley, clover, wheat, clover, rye; one field to be manured each year. It gives us surprise to observe, that in all the estimates which accompany these rotations, fifteen bushels of wheat *per* acre is the highest produce stated of this grain, which certainly does not afford a very promising view of Transatlantic husbandry.

A very circumstantial account of a farm-yard, adapted to the preceding system, is presented, which we should be happy to see extensively imitated in this country. When we state the explanation of an accompanying plate, the most of our readers will join us in the remark.

1. Mansion.
2. Kitchen, oven, and ash-hole.
3. Poultry house and yard.
4. Wood yard.
5. Laboratory.
6. Milk house.
7. Ice house.
8. Pigeon house.
9. Cloacas.
10. Family yard.
11. Pump.
12. Watering troughs.
13. Sow and pig styes.
14. Cow house.
15. Boiling house.
16. Hogs.
17. Stercories.
18. Barn.
19. Sheep house and yard.
20. Chaise house and stable.
21. Waggon and cart house.
22. Implements of husbandry-house.
23. Workshop.
24. Herdsmens hovel.
25. Granary.
26. Farm stable.
27. Treading floor.

Each of these conveniences is accurately explained. Upon the last article, (treading floor), the author says—'Though but six to eight horses should tread on it, yet it ought not to be of less diameter than 80 or 90 feet; but the tract or bed of wheat is narrowed to 12 or 15 feet. I was long, and greatly prejudiced against *treading* wheat. But, experiencing the advantages of getting out the crops with *speed*, and very *clean*, when on a permanent and well preserved floor, with horses gently trotted in ranks, distant and airy each rank from the others, the preference, in my opinion, is in favour of treading, over the most expert thrashing with flails: so much so, that, considering the greater opportunities of pilfering, and lengthy troublesomeness of thrashers, I would prefer treading to having my large crops thrashed for nothing.'

The following articles are next treated of:—*Clover*, of which the author thinks 4 lb., when sown out of a box which he describes, sufficient for an acre; *wheat and clover; beans;*

new practices in the culture of maize and wheat; hemp and farm yard manure. Under the last article, the author reprobates the American practice of stacking hay and fodder in the fields, and feeding cattle round the stacks and fodder houses. Though, in many English counties, the same practice is slovenly followed, yet, as it is a wasteful consumption of the provender, and an unprofitable use of the manure, we cordially concur with him in recommending, that all cattle should be either housed, or kept in fold yards during the Winter months.

The author is even for going farther; and, with much force of argument, demonstrates, that *soiling* is infinitely preferable to *pasturing*, as the grass will not only go much farther, but that the animal will thrive equally well. We shall extract a few of his arguments.

'Opposed to our unmade pastures, are the *made* pastures of Europe, and some parts of America: and opposed to *all pasturing*, is *soiling*. Soiling is common in Flanders, and is advancing into extensive use in Germany and in England. It is to the present purpose, that these practices and their effects be compared.

'Advantages in *pasturing* are, that *rich* grass pasture keeps grown cattle at the rate of one and a third acre to a beast, during the six or seven warmer months: *common* pasture, at the rate of two acres to a beast. Attendance on them in pastures is very little. They range at pleasure, and drop their manure on the field; so that labour in heaping, carting out, and spreading it, is saved. The disadvantages are, the grass and the ground are trod, and reduced in value: the pastures require costly division fences: the dung is scattered on the ground, exposed to exhalation and waste by sun and wind, so as to be greatly reduced: the horses and oxen are driven to the stable, with much waste of time, and some vexation and consequent abuse.

'The advantages of *soiling* are, that the ground requires but few or no division fences: grown cattle are kept at the rate of a fourth part of an acre to a beast, during the six warmer months: their manure is all well preserved, and given to the soil when and where it is most wanted, and in the best condition: the soil is untrod, and left mellow and lively: the horses, oxen, and cows are always up *, ready for use, without loss of time: they are kept cool,

* Except that, for a few hours after they are returned to the stalls on the morning watering, they may be let out to stroll and rub themselves in the farm-yard, from 11 o'clock till 3, then put up in the stalls; by which they will not have time to drop much dung in the yard; and what is there dropt should be harrowed to the stercory. Carried *immediately* to the stalls, after being watered, they dung and stale plentifully in the stalls; then, being turned out, they do not dung much whilst in the yard.

cool, shaded, and less worried by flies: they acquire good coats, and full flesh, on a less expence of food. When it is objected to the laying aside division fences; that there would be, at times, bad seasons, when grass could not be cut and carried in, because of great rains, or of cold drying winds, which check the growth of grass; so that it would be requisite there should be some fields divided off for the beasts to run on at those times: The answer is, that there is another way of providing for the cattle, and that much preferable. In towns, we see horses and cattle are kept upon *hay* and *straw* the year round, and that it agrees with them. A quantity of hay is therefore to be kept in store, as a *provision against such untoward seasons* as shall deprive the beasts of their mess of cut grass. Prudent farmers deem it requisite always to have some stock of old hay.'

The following paragraph does not convey a favourable impression of American farmers. We charitably hope that the picture is too highly coloured.

'But, in many parts of America, are idle, improvident people, masters of farms, who spend their time in taverns, or other places of wasteful amusement: any where, rather than at home. These haunts are at the expence of their *domestic* happiness. Sooner or later they bring on them debts, wants, and grating claims of creditors. Such a people can never be brought to soil cattle, or at all improve their farms. Where is solid comfort to be found, if not at *home?* The meanness, the selfishness, and the folly of these *husbands*, *fathers*, or *masters*, are conspicuous, degrading, and shameful; who, regardless of *wife*, *child*, and *dependents* claiming their protection, their affections, and their attentions; and even regardless of the true interests of their precious selves, fly from their own happiness, in the moment when they mount their horses, and hurry to the tavern, the race, nine-pins, billiards, excess upon excess of toddy, and the most nonsensical and idle chat, accompanied with exclamations and roarings, brutal and foreign to common sense and manners as the mind of wisdom can conceive of depraved man. Had these men, so deficient in character, been trained but a few years among the orderly, thoughtful good farmers of some neighbouring district, they would have learnt valuable lessons for conducting their farms, themselves, and their domestic affairs, greatly to their comfort and advantage, and to the comfort due to their families and dependents; to whom they owe more than they are accustomed to feel for them. There are, on the other hand, those who, with industry, aim at providing for their families; but it is not with an honest mind, and fairness of reputation. The strength of these is in low cunning. If, indeed, they wish to be perfect in that detestable of all qualities, *country-cunning*, they need not go far

from home; unless for the sake of embellishing the estanical talent with some variety. They might then go among the thoughtless class of people in neighbourhoods distinguished for more of this base quality than of provident industry, fairness and honest candour.'

In the section upon cattle and sheep, the author condemns the attempts that have have been made to introduce big-boned animals into America; and thinks the old breed of the country, which have the fore and hind quarters nearly alike in weight, is much to be preferred. Northward from the Susquehanna, the old breed appears mostly to be supplanted, by new kinds imported from Europe, which are described as being nearly one-third heavier in the fore than hind quarters. We believe these large lubberly beasts are not now so much in fashion in England as formerly; and, most certainly, the profit of keeping them, is inferior to that of middle sized, and better proportioned animals.

According to our author, those, who may be styled the aboriginal farmers of the country, are not the best diposed to the introduction of improvements. We believe that his sentiments on this head, are agreeable to what has been recognised in other countries.

'Improvements in agriculture will probably be first introduced amongst us by soldiers, sailors, physicians, clergymen, or others, who become husbandmen with minds unfettered by the confined views and habits in which common farmers are trained, according to those which had been fixed on, and handed down through many generations. Attentive husbandmen will, at first, only look on, ashamed to imitate; which would imply deficiency in their own practices; yet, after a while, they will cautiously begin to adopt certain of the approved new practices. Varying these, in some unimportant particulars, they will cherish them as discoveries altogether their own. It is a sort of apology they make to themselves, for their imitating improvements pointed out by men they deem ignorant of what themselves practise, and deem to be farming.'

Separating grain from the straw, before thrashing machines were invented, was generally considered as the most difficult operation upon extensive farms. In the southern American states, the antiquated and barbarous practice of treading it out with horses still prevails; and, as the greatest part of our readers are happily unacquainted with such a mode of separation, the account here given cannot fail to prove interesting and entertaining to them.

'*Treading*

'*Treading Wheat.*—This is an universal practice within the peninsula of Chesapeak; and in the early ages, was performed in the old countries by oxen; as it still is, in Barbary and some other countries. In Britain, and in all the American states northward of Maryland, the flail is the common instrument for thrashing out wheat: both modes are fixed habits in the respective countries. Oxen have been tried in Maryland, by a person who had been used to tread with horses, and he found them very exceptionable. I have had wheat from Barbary, which was extremely dirty.

'I was always much hurt by the injury done the horses, in my former awkward manner (the common practice of the country) of driving them loose; and withal, their driving, kicking, and jostling each other, helter-skelter; but am now quite pleased with treading wheat, since haltering, and leading them in ranks, prove the labour or injury is less, than from ploughing them half a day in a maize field. The above are the only objections occurring to me, against treading wheat with horses. The advantages are: an entire crop of wheat beat out before the end of July, which perfectly secures it against the moth-fly; leaves but little opportunity to pilferers, and is ready for an early market, often the best. To hire thrashers, or put my labourers to thrash it out with flails, the time spent, would give abundant opportunity for thieving; which is avoided by the speedy method of treading, when in about a fortnight three thousand bushels may be secured, instead of near a hundred days that flails would require.

'I presume not to offer instruction to farmers who are experienced in treading on large permanent floors properly kept, and with horses in regular ranks; but, to the less experienced and judicious, I submit the method I have used of late, as the best within my knowledge. My floor is unincumbered with any fence. A barn 60 feet square, is in the middle of it; around which, the horses travel on the bed of sheaves, about 25 feet broad; so that, the diameter of the whole is 135 feet.

'In my treading, twenty-four horses are formed at some distance from the floor into four ranks; and when the floor is ready laid, one of the ranks has the word given to advance. For the sake of order and regular work, the boy, who is mounted on one of the horses, advances in a walk, with the whole rank haltered or tied together, and enters on the bed of wheat, walking the horses upon the track laid with wheat: another rank is ordered to follow, as soon as the first is supposed to have obtained a distance equal to a fourth part of the circumference of the bed; and so of the other ranks. They are forbid to go out of a walk, till, having walked upon the bed five or six rounds, word is given to move on in a sober, slow trot; and to keep the ranks at their full distance from each other, as the four cardinal points of the compass. Regularity and deliberate movements are necessary, for preventing confusion. The gentle

trot is continued till the horses have travelled eight or nine miles, which is their first journey; and then they are led off to be fodder-ed, watered, and rested; while the trodden light straw is taken off as deep as to where the sheaves still lye, somewhat close, and but partially bruised: this is called the first straw, or first journey.

'As soon as this first straw is off, one-third of the width of the bed is turned over on the other two thirds, from the inner side or circle of the bed, which narrows the track of the next journey. The horses are again led on, and trot out their second journey, till the straw be again light and clear of wheat. It is then taken off, as deep as to what lies more close. The horses are again foddered, and allowed to rest, whilst the outer third of the bed is turned upon the middle part of the bed. Then tread the bed a third journey, till enough. This straw being taken off, the whole remaining bed is turned up from the floor, and shook out with forks and handles of rakes. The horses tread this well, which finishes their journies; unless it be to run them a while on the chaff and wheat, the better to separate them. The whole being now shoved up from the floor, with heads of rakes turned down, the wheat and chaff are put up into heaps on the floor, five or six on my great floor: And thus is finished the day's work; in which, most of the time is taken up in breaking the stacks, laying down the sheaves, carrying off the straw, turning and shaking the grain out from amongst the straw; and, lastly, collecting the chaff and grain into secure heaps on the floor, which is also swept, for saving scattered grains in separate parcels, to be next day cleaned separately from the general masses of chaff and wheat.

'A neighbour, viewing the treading of wheat on my floor as above practised, said, the method is admirably easy to the horses; and that most of the time is spent in taking off, and carrying away the straw. But he thought it would be a saving, if the outer half of the bed should be trod till enough; and then shift the horses on the inner half of the bed; and, whilst this is treading, the straw to be carried off from the outer half first trodden.'

We suspect, that the corn lands in America are very slovenly reaped. In the result of some experiments, it is said, that 200 acres of wheat were cut in twelve days, with twenty-three sickles; which is only about one and three-eighth sickles to the acre. This imperfect cutting may be supposed to be one of the causes why the crops are so defective. To make decent work, it will require at least four hands to an English acre of wheat; and, if neatness and accuracy are studied, and the crop heavy, that number will be found insufficient.

We have next a long essay on the *nature and principles of vegetation*, being the substance of answers made to queries selected from a paper of the Board of Agriculture in London.

From this, an extract shall be given upon a future occasion.

We observe 'a proposal for a state society for promoting Agriculture; and that the education of youth should direct them to a knowledge of the art, at the time they are acquiring other useful knowledge, suitable to agricultural citizens;' which was presented to the Legislature of Pensylvania, and rejected, it is said, 'by *husbandmen, who were principally to be benefited.*' The proposal is of such a salutary nature, and its objects so clearly described, that we were going to express our surprize at the rejection; but we remember so many things of the like nature happening in our own country, that our surprize has, in a great measure, ceased.

In the concluding part, we observe a good deal of practical information, under the title of *notes* and *intimations*. We extract a few of them.

'*Veals.*—In selling veals to butchers, their haggling was extremely disagreeable; and to avoid it, I sometimes either at once broke off, or gave up to their offers. At length, after weighing veals killed for my family, I fixed on a price by live weight; at which to sell. The butchers at first refused to be fixed at any rate; they afterwards came to, and agreed at 3d. live weight.

A veal alive weighed 146 lb.

—The four quarters 70; which is within 3 lb. of half the live weight.

'At 3d. live weight, this veal would cost them 36s. 6d.; but, for such, they used to give me 32s. to 33s. on the foot. The first sold by live weight were 4 veals; medium live weight 133½, which averaged 33s. 2d. a veal. They usually sold at 7d., scarcely any part under 6d., sometimes 7½d. and 8d. Their gain was above 40 *per cent.* Lord Kaims says, butchers gain but 5 *per cent.* in Scotland. They disliked the method by live weight; because of the certainty of reducing usual profits, gained from their superior skill in estimating the weight and value of veals.

'*Hams.*—

	lb.	lb.
1788. Dec. 2.—20 of my family hams, trimmed, weighed green,	321 or each	$16\frac{6}{10}$
1789. June 30.—They weighed, when full smoked, - - -	256	$12\frac{8}{10}$
Evaporation - -	65	$3\frac{8}{10}$

The loss of weight $20\frac{1}{2}$ *p. cent.*, or about $\frac{1}{5}$th.

Dec.

Dec. 22.—A tenant's hams; 2 weighed, green and trimmed	- -	lb. 31
Aug. 11.—The same when smoked	-	26
Evaporation	-	5 or 16 *p. cent.*

' The tenant's were not so much smoked or dried, as he cured them for sale, and to weigh.

' *Family pickled Beef.*—Two pounds *brown sugar* are mixed with a quarter pound of *saltpetre*, pounded *very fine*. One half of it is rubbed together with a little fine *salt* over the beef. Four gallons of brine, bearing an egg, are boiled and skimmed: and when *cold*, the remainder of the *sugar and nitre* is added. The beef is then sunk in the pickle, and kept down with a weight.

' *Family dried Beef.*—Rub the beef with a mixture of 1 lb. *sugar*, ½ lb. of *saltpetre*, and a little *salt*; the nitre, especially, in a very fine powder. The beef is to remain 3 days in a tub, and is then again rubbed with a little more of the same ingredients. The beef, returned to the tub, is to lye two or three days more, and is then hung up to dry. It seems as if this is meant to be dried without smoke; but others smoke it very lightly, and then hang it, exposed to wind and air, in a dry room. Cellars, and all *damp* places are improper for keeping meat, either salt or fresh.

' *Barrelled Beef.*—Being at an inconvenient distance from market, and seldom able to sell my beeves, I found it adviseable to depend rather on barrelling up from the grass, than on selling on the foot. From ignorance of a proper mode of performing the business, part of my beef in the first attempt spoiled. On four years experience, I prefer the following, which procured a good character to my beef at market: I killed between 24 and 30 beeves, yearly, the last week in October, from the grass.

' The beeves may be kept up from food and drink two days; the better if close and dark, and then slaughtered; and by so fasting, are found to *bleed better*, are handled *lighter and cleaner*, and and every way *look better*. Previous to this practice, I found, that upon the first salting, and the meat lying in open barrels *four* days, there has been drawn out by the salt, 8 *gallons of bloody juices* from 432 lb. of beef. This is of the nature of pining of herrings, by the Dutch. Compare that with this method of *salting* and *curing*.

' The barrels are to be ready, sweet, and well trimmed; and the *salt* previously washed or refined, and ground small, before the beeves are to be slaughtered. I killed 14 beeves as *to-day*, and salted

ed them to-morrow morning. *Delay* in salting, is injurious; so is exposure to the air, even after it is salted. The pieces are, therefore, packed into the tight barrels, piece by piece, as they are salted; instead of bulking them on a frame or dresser to drain, as had been the practice; and, instead of remaining two weeks to drain, exposed to the air, they are now 6 or 8 days left to drain, in close barrels, headed up tight.

'Having thus secured the first day's beef, in barrels, to drain (or pine); on the third day, other 14 beeves were killed, and managed in the same manner.

'Coarse salt *washed*, but not ground, having also been previously ready, is dissolved in fair cold water, till no more can be dissolved on stirring. Let it settle a day or two: skim off the top: pour off all but the dregs. When perfectly *cool* and *clean*, it is ready to be poured on the repacked beef.

'The meat is to be taken out of the barrels; *refalted*, and closely *repacked* in the same barrels. Immediately head them up perfectly close; and they remain so. In a few days afterwards, bore a hole in one of the heads, or the bulge of each barrel, and fill up the barrels with the *prepared* and *boiled juices of the meat*, saved from the first salting and barrelling, as under mentioned. Every time of filling, the barrels, being rolled, leaves room for more liquor. When there is no more of the prepared juices, the barrels are next to be repeatedly filled with the plain strong brine, made as above, from the washed coarse salt, till they can take no more after standing a while.

'Let not the barrels of meat be exposed to the sun, as is often the case, by rolling them out of doors, and leaving them there longer than need be. *Damp* is bad for salt meat as well as for fresh; therefore, store the barrels in a *dry* place, the *coolest* to be found.'

There is much good sense in the note upon ploughs; with which, we shall finish this article.

'*Ploughs.*—A habitual fondness for *wheels*, has greatly lumbered and depreciated the ploughs of England. Ingeniously built Norfolk wheel ploughs have been imported into America; but were very soon laid aside. In opposition to this huge complex machine, the English Rotherham plough is every thing: a simple chip swing-plough, with a clean but full bow mould board. The share and mould board are superior for cutting and turning old ley or grass land; but in horse-hoeing, it is inferior to the common bar ploughs of Maryland and Pensylvania, as it requires more use of the ploughman's hands. The common fault in the American ploughs, is mostly in the mould board. Almost any mould board would be preferable to the *hollow* fine shaped board, which the fancy of some delight in; as injudicious watermen prefer the sharp entrance and *hollow* forepart of the bottoms of sailing vessels. The plough and the

the boat have to force their way through resisting mediums. For gaining this, sharpness of entrance is all in all with heedless fancy.

'But what avails this first clear entrance, if opposition, in a more abrupt and direct manner, a little further aft is the consequence? View the *hollow* mould board of a sharp fair looking plough, after it has been worked a while, or whilst working; what a glut of friction or opposition it has experienced, just in the hollow; and how it labours, through accumulated masses of earth unthrown off forward. On the other hand, see the mould board having a fair easy entrance, and full bow, in a gradual swell as it rises; how it turns off the earth, and rids itself, or avoids accumulated resistance, just as a well formed boat does the water; and this, with the least possible friction, or wearing of the mould board.'

If the different subjects, discussed in this work, had not been, in several respects, novel to our readers, we would have apologized for the length of the article; but, as an account of American husbandry cannot fail to prove interesting to British farmers in general, we trust no apology is necessary.

Upon the whole, though we consider the writer as possessed of an active mind, and under the influence of liberal principles; yet, in several instances, we judge his observations are founded more upon theory, and the opinion of others, than upon the solid foundation of practice and experience. N.

Selections from the Correspondence of General Washington and James Anderson, L. L. D., F. R. S. &c. &c. in which the causes of the present scarcity are fully investigated; 8vo, 88 pages. Cuming, *London*, 1800.

Dr Anderson's reputation, as an enlightened and experienced agriculturist, is so firmly established, that every thing proceeding from his pen is entitled to respect and attention. A considerable part of this pamphlet being, however, employed upon political matters, we shall only examine what more properly belongs to the object embraced in the title page.

In our last, we noticed the cause assigned by a learned Professor, as producing the existing scarcity of grain, which we viewed as altogether unfounded; and, after the most deliberate consideration, we are under the necessisy of giving something like the same opinion of the causes described by Dr Anderson. We join him, however, in thinking, that 'the real spirit of the times seems to depress agricultural operations;' though we by no means believe, that the consequent depression has produced such an alarming scarcity of

of grain. It only increased a scarcity, which would have happened under the wisest laws, and most judicious administration.

To Dr Anderson, however, the scarcity gives no surprise; because he views it as a necessary consequence of previous political arrangements. Our readers will attend, that Dr Anderson here alludes to the Corn laws, which have, by him, (we think erroneously), been long considered as discouraging to agricultural improvement. In addition to these laws, Dr Anderson, with more justice, states the exaction of tithe, the encouragement given to idleness by the English poor laws, and the general want of leases, as circumstances which have lessened our agricultural prosperity. Allowing full force to every argument offered upon these points, still it is evident, that some other cause was required, to occasion such a disproportion betwixt the crop of 1798 and that of the succeeding year. Dr Anderson assigns no other than those already mentioned, though the laws and customs of the country were precisely the same during these two seasons. What is truly wonderful, he does not disclose to his illustrious correspondent, the least information concerning the singular adversities which crop 1799 encountered; but, like many philosophers, treats the influence of the elements with contempt and neglect.

Though Dr Anderson has said a good deal, and, in our humble opinion, very much to the purpose, respecting agricultural grievances, yet we cannot suppose for a moment, that he has '*fully investigated the causes of the present scarcity.*' Every sentiment, nay every word, which he has used in the investigation, would have been equally applicable to the subject in 1798, as at the æra which produced this correspondence. N.

Gleanings from Books on Agriculture. London: Johnston, &c. 196 *pages*, 8vo. *Price* 4*s*. 1801.

This is confessedly a compilation; but, in many respects, it may prove useful, at least to the young and unexperienced agriculturist. It is arranged in the Dictionary form, and the several processes of rural management are, in general, pretty accurately detailed.

We select a part of one article, as a sample of the work.

'BARLEY.

1. Soil.

a. Should be rather light than stiff, but of sufficient tenacity and strength to retain the moisture.—On clays, the grains are coarse and brown.

2.

2. SEED.
   - *a.* Should be of a pale lively colour and brightish cast, without any deep redness or black tinge at the tail; if the rind be a little shrivelled, it is the better.
   - *b.* Requires being changed, more than any other grain.
   - *c.* In a dry season, if soaked in clean or stagnate water for twenty-four hours, it will come up a fortnight earlier than dry seed: the light corn that floats should be skimmed off. Some little risk attends soaked seed, it being apt to burst, if much rain fall before it is come up.

     Barley that has been wetted for malting, and begins to sprout, will soon come up.
   - *d.* In a trial made between sowing it drilled and broad-cast, the extra produce of the drilled crop was about 20 bushels *per* acre, besides near two bushels of seed saved. A single grain set or drilled will sometimes produce eighty stalks.

3. PLANT.
   - *a.* Rolling it makes it tiller into a greater number of stalks.
   - *b.* If the blade grows rank, mowing is better than feeding with sheep, as the sheep are apt to bite so low as to injure its future growth.'

The motto upon the title page is—'*Arthur Young observes, that the farmers in some parts of the kingdom get rich, by modes of husbandry unknown in other parts;*' which is so far true. But it is evident, that the benefit to be gained from publications of this nature, will depend, in a great measure, upon the degree of knowledge possessed by the compiler. If he is well informed, judicious and profitable practices will alone be recommended; whereas, if his knowledge is limited and superficial, erroneous management will be enforced, with equal zeal as the most perfect and enlightened husbandry.

We are rather inclined to think, that our author is defective in practical knowledge; and various parts of the work might be condescended upon, as proofs of this deficiency. Witness in p. 108, where 'lime is said to be a bad manure for clay;' and p. 196, where the yam potato is said 'to be probably only cultivated in the counties of Mid Lothian and Stirling.' In the account of the thrashing machine, p. 191, Winlaw's, and the portable machine, receive equal encomiums with those which are wrought upon the principles of the flax mill; though there is as great a difference in their respective values, as betwixt a pound Scots and a pound Sterling. N.

PART

PART III.

Extracts from Agricultural Works.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

GENTLEMEN,

IF you think the following extract from the *Journal de Physique* will be acceptable to the readers of your Magazine, it is very much at your service. P. H.

Method of Preparing Cheese in the Lodesan, commonly called PARMESAN CHEESE.

The size of these cheeses varies from 60 to 180 lb., depending considerably on the number of cows in each dairy.

During the heat of Summer, cheese is made every day; but, in cooler months, milk will keep longer, and cheese is made every other day. The Summer cheese, which is the best, is made of the evening milk, after having been skimmed in the morning and at noon; mixed with the morning milk, after having been skimmed at noon. Both kinds of milk are poured together into a copper caldron, capable of holding about 130 gallons, of the shape of an inverted bell, and suspended on the arm of a lever, so as to be moved off and on the fire at pleasure. In this caldron, the milk is gradually heated to the temperature of about 120 degrees: it is now removed from the fire, and kept quiet for five or six minutes. When all internal motion has ceased, the *vennet* is added. This substance is composed of the stomach of a calf, fermented together with wheaten meal and salt: and the method of using it is, to tie a piece, of the size of a hazel nut, in a rag, and steep it in the milk, squeezing it from time to time. In a short time, a sufficient quantity of vennet passes through the rag into the milk, which is now to be well stirred, and afterwards left at rest to coagulate.

In about an hour, the coagulation is complete; and then the milk is again put over the fire, and raised to a temperature of about 145 degrees. During all the time it is heating,

ing, the mass is briskly agitated, till the curd separates in small lumps: part of the whey is then taken out, and a few pinches of saffron are added to the remainder, in order to colour it. When the curd is thus broken sufficiently small, nearly the whole of the whey is taken out, and two pails-full of cold water are poured in. The temperature is thus lowered, so as to enable the dairy-man to collect the curd, by passing a cloth beneath it, and gathering it up at the corners. The curd is now pressed into a frame of wood, like a bushel without a bottom, placed on a solid table, and covered by a round piece of wood, with a great stone at the stop. In the course of the night, it cools, assumes a firm consistence, and parts with the whey: the next day, one side is rubbed with salt, and the succeeding day the cheese is turned, and the other side rubbed in the same manner. This alternate salting on each side is practised for about forty days. After this period, the outer crust of the cheese is pared off; the fresh surface is varnished with lintseed oil; the convex side is coloured red; and the cheese is fit for sale.

Extracts

Extracts from Accounts presented to the House of Commons, respecting Corn, Flour, Provisions, &c. ordered to be printed 18th November 1800. (p. 327

No. I. A Statement of the Prices of Middling Wheat *per* Quarter, according to the Winchester Measure; also, of the quantity, in Quarters, of all Grain exported, and of the quantities of all Grain imported, from the year 1697 to the year 1799, both years inclusive, divided into periods.

Years.	Average Prices of Middl. Wheat.	Wheat and Flour.		Barley and Malt.		Oats and Oatmeal.		Rye.		Peas and Beans.	
		Exports.	Imports.	Exports.	Imports	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.
From 1697 to 1701	42s. 8d.	336,171	7,085	29,965	361	1,446	2,055	75,492	3,972		
1702 - 1707	25 11	645,831	129	842,568		735	594	247,418			
1708 - 1711	49 9	353,135	2,038	607,860	1,335	18,720	324	221,451			
1712 - 1715	37 8	682,410	16	967,128	1	57,931	21	108,444		72	
1716 - 1719	33 1	306,427	20	1,427,917		48,549	383	160,593		327	
1720 - 1724	28 10	751,250	148	1,733,122	707	42,906	61,744	199,095		50	161
1725 - 1729	37 7	408,759	114,901	1,159,513	29,047	36,978	256,351	52,407	174,252	39	23
1730 - 1734	25 9	1,146,964	94	1,210,182	3,896	24,918	123,104	89,051		202	3
1735 - 1739	30 10	1,613,345	85	1,235,009	7	68,496	6,767	77,352			29
1740 - 1744	28 7	1,005,759	13,015	1,111,361	15,628	38,445	122,496	243,429	12,138	60	3,888
1745 - 1749	27 9	1,903,183	394	2,217,971	40	505,112	19	437,204			53
1750 - 1754	30 5	3,101,092	484	2,041,480	56	43,127	80,541	295,936		120	288
1755 - 1759	36 2	588,638	162,082	935,279	15,905	22,119	102,086	115,888	9,922	32	2,935
1760 - 1764	30 7	1,957,350	132	1,590,677	9,280	48,772	387,133	180,482			151
1765 - 1769	43 2	394,461	967,118	412,154	103,413	60,016	892,588	32,564	123,852	71,256	49,400
1770 - 1774	47 6	116,062	374,024	224,024	238,749	122,894	1,172,544	2,902	57,660	82,411	86,346
1775 - 1779	40 0	752,718	926,322	519,960	205,730	176,915	1,679,635	19,572	66,463	204,810	248,802
1780 - 1784	45 8	611,463	1,045,606	590,729	236,108	117,394	839,172	23,105	116,817	92,349	128,866
1785 - 1789	42 11	681,672	483,031	971,631	195,437	109,365	2,115,987	103,953	54,303	95,252	106,699
1790 - 1794	45 11	633,314	1,543,417	152,840	485,115	87,232	4,217,538	22,158	171,151	73,720	279,959
1795 - 1799	62 9	183,005	2,532,835	89,065	258,322	81,190	3,174,406	1,227	225,726	67,900	186,760

N. B. The above average prices of Middling British Wheat are taken from the Accounts kept in the Audit Book of Eton College, calculated at Lady Day and Michaelmas each year.

The average price of Middling British Wheat, taken from Mr Catherwood's tables, from the 26th September 1799 to the 26th September 1800, was — In England 106s. *per* Quarter.
In Scotland 83s. 4d. *per* do.
For crop 1800, as stated in the Books of Eton College 112s. 7d. *per* do.

No. II.

An account of the quantity of Foreign Wheat and Wheat Flour imported into Great Britain, from the 26th September 1799 to 26th September 1800—the Flour converted into Wheat, by allowing 3 cwt. to each quarter.

		Quar.	Bush.
Total—London	—	558,430	0
Out-Ports	—	505,243	2
Scotland	—	121,980	4
Grand total	—	1,185,653	6

No. III.

Account of the Average Price of the several sorts of Grain for England, from the 28th September 1799 to 27th September 1800, distinguishing the price of each quarterly.

	Per Quarter Winchester Measure.											
	Wheat.		*Rye.*		*Barley*		*Oats.*		*Beans.*		*Peas.*	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Average of 1st Quarter	89	1	55	7	43	0	32	3	60	0	54	4
Ditto of 2d do.	102	0	70	0	49	11	35	3	64	2	60	10
Ditto of 3d do.	119	1	86	1	63	2	45	10	74	4	73	11
Ditto of 4th do.	113	10	75	3	59	8	40	8	69	2	65	2
Ditto of the year	106	0	71	9	53	11	38	6	66	11	63	8

No. IV.

Average Prices of Grain and Oatmeal for Scotland, from September 14th 1799 to September 13th 1800, distinguishing the price of each quarterly.

	Per Quarter Winchester Measure.												*per boll 140lb.*	
	Wheat.		*Rye.*		*Barley*		*Oats.*		*Beans.*		*Peas.*		*Big.*		*Oatmeal.*	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Av. 1st Q.	70	8	35	9	32	2	27	5	48	10	48	9	29	1	24	11
Do. 2d do	75	10	41	1	38	1	31	1	55	9	54	3	35	4	31	4
Do. 3d do	91	5	63	8	55	6	47	3	82	5	85	6	49	4	42	1
Do. 4th do.	95	7	65	5	56	11	48	0	86	9	89	1	52	7	43	0
Do. of year	83	4	51	6	45	8	38	5	68	5	69	5	41	7	35	4

No. V.

Account of the quantity of Wheat and Wheaten Flour carried coastwise from the port of London in the last ten years, distinguishing each year.

	Wheat.		*Wheaten Flour.*	
	Q.	B.	Q.	B.
From 1st Jan. to 31st Dec. 1790	13,294	4	7,958	7
—— —— 1791	17,974	4	8,473	7
—— —— 1792	22,656	4	8,989	0
—— —— 1793	33,466	3	6,140	0
—— —— 1794	43,562	5	10,587	4
—— —— 1795	47,617	5	8,208	0
—— —— 1796	159,354	4	11,645	4
—— —— 1797	84,204	5	12,013	1
—— —— 1798	88,711	3	11,159	6
—— —— 1799	138,902	0	13,164	4
—— 30th Sept. 1800	162,911	5	22,127	7

No. VI.

Account of the quantity of Wheat and Wheaten Flour brought Coastwise into the Port of London, in the last ten years; distinguishing each year.

	Wheat.		*Wheaten Flour.*	
	Q.	B.	Q.	B.
From 1st Jan. to 31st Dec. 1790	211,999	5	83,066	6
—— —— 1791	239,035	1	97,358	3
—— —— 1792	266,070	6	111,650	0
—— —— 1793	230,676	0	109,100	1
—— —— 1794	225,741	5	130,078	1
—— —— 1795	196,162	1	127,207	4
—— —— 1796	164,298	4	130,163	6
—— —— 1797	259,461	4	174,730	2
—— —— 1798	259,469	0	142,177	5
—— —— 1799	269,525	1	142,182	1
—— 30th Sept. 1800	121,604	5	81,205	0

No. VII.

Account of the Quantity of Foreign Wheat, Wheaten Flour, Barley, Oats, Rye, Beans, and Peas, imported into England since the opening of the Ports on the 26th September 1799, to the 27th September 1800.

	Barley.		*Beans.*		*Oats.*		*Peas.*		*Rye.*		*Wheat.*		*Wheat Flour.*		
	Q.	B.	Q.	B.	Q.	B.	Q.	B.	Q.	B.	Q.	B.	cwt.	q.	lb.
From 26th Sept. 1799 to 5th Jan. 1800 - -	4,618	3	6	0	79,471	7	1,944	5	12,119	7	173,395	0	43,705	1	0
Quarter ending 5th April	1,067	7	650	7	17,494	6	328	6	3,055	5	31,039	2	14,235	2	14
Quarter ending 5th July -	13,786	7	6,077	3	124,874	7	7,555	3	67,944	6	396,076	2	85,428	0	24
From 5th July to 27th Sept.	41,560	7	6,416	7	224,871	2	6,736	5	65,308	6	431,610	7	176,761	0	7
Total -	61,034	0	13,151	1	446,712	6	16,565	3	148,429	0	1,032,121	3	320,130	0	17

No. VIII.—Account of the Quantity of Foreign Grain imported into Scotland, from the opening of the Ports on the 26th September 1799, to the 27th September 1800, distinguishing the Quantity imported into each of the Ports, respectively.

	Wheat.		*Wheat Flour.*			*Barley.*		*Oats.*		*Oat-Meal.*	*Peas.*		*Beans.*		*Rye.*		*Rye-Meal.*		
	Q.	B.	cwt.	qr.	lb.	Q.	B.	Q.	B.	BOLLS.	Q.	B.	Q.	B.	Q.	B.	cwt.	qr.	lb.
Aberdeen	1,337	1½	254	1	12	1,628	6½	1,347	2	—	16	6	—		—		—		
Ayr	2,827	6	136	2	0	—		—		—	—		—		—		—		
Alloa	3,112	0	—			173	0	1,122	1	—	—		—		—		—		
Anstruther	22	1	—			432	0	149	6	—	108	0	—		—		—		
Borrowstounness	25,085	4	202	0	0	700	0	12,210	4	—	211	0	650	0	915	0	—		
Campbelltown	—		—			—		14	4	—	—		—		—		—		
Dunbar	—		—			—		290	2	—	—		—		—		—		
Dundee	3,883	1	—			339	7	1,213	3	—	163	1	—		7	0	—		
Inverness	36	0	—			—		—		—	—		—		—		—		
Kirkcaldy	1,381	0	88	3	0	390	0	1,116	4	—	161	0	—		—		3	2	0
Kirkcudbright	0	4	—			—		—		—	—		—		0	4	—		
Leith	62,012	3	3,115	3	0	3,121	2	14,239	2	—	2,348	3	—		58	0	—		
Montrose	6,376	6	—			1	0	262	6	—	0	2	—		—		—		
Perth	3,403	5	—			—		2	0	—	—		—		—		—		
Port-Glasgow	1,599	3	5,416	0	27	169	0	—		—	—		10	6	—		—		
Glasgow	423	0	—			—		—		—	—		—		—		—		
Greenock	3,115	0	16,246	3	27	—		640	0	117	—		—		—		425	3	0
Totals	114,615	2½	25,460	2	10	6,954	7½	32,608	2	117	3,008	4	660	6	980	4	425	3	0

N 3

On the CORN *LAWS.*

Extracted, by permission of the Rev. Mr Findlater, from the Manuscript Survey of Tweedale.

THE best corn laws ever introduced into Scotland, were certainly the acts of Parliament 1449 and 1469; with the gradual extension of the principles of these statutes, through the liberal interpretation of our Judges; *affording assurance to the cultivator of the soil, of reaping the fruits of his labours and of his capital, by communicating security to his tenure.* The act of Parliament 1748 falls under the same description; and much remains in expectation from individual exertion, as an enlightened sense of self-interest shall gradually be diffused through the classes of landed proprietors, and of professional farmers, in regard to the proper construction of leases.

In regard to the corn laws, properly so called, the views entertained by landed proprietors and farmers seem to be, that the price of corn should be artificially enhanced, by constant bounties upon exportation, and by the prohibition of importation, except in clamant cases of more than ordinary scarcity and dearth. And, when it is considered how many exclusive privileges have been obtained against these classes, by the address of merchants and manufacturers, (in monopolies of the home market, secured to them by prohibitions of importation of such articles as they deal in; in bounties upon the exportation of such articles; and monopolies of the home produced raw material of their manufacture, by prohibitions of its exportation in an unmanufactured state); it is not surprising that the former classes should bestir themselves, in endeavouring to obtain exclusive privileges in counterbalance.

The classes of merchants and manufacturers, (who have, in general, been more successful in persuading the public at large of the coincidence of the public good with their private views), seem to aim, either at allowing the market of grain to take its natural course, without encouragement of bounties upon exportation, or prohibitions of importation of that of foreign growth; or else at the prohibition of exportation, and encouragement of importation: that corn being in low price, wages

wages (which, upon an average, are supposed to bear a proportion to the price of grain), may also keep low in proportion, and allow them to afford the articles of manufacture at that low rate which shall secure a preference in the competition, either of the home or foreign markets.

The Legislature seems to steer a middle course, in compromising these opposite views; though, were it not for the difficulties, nearly insuperable, which occur in altering systems, long established and interwoven into so many different connexions and dependencies, it might probably be more beneficial to lay every thing open, in regard to manufacture and commerce, as well as the market of grain.

To prevent the price of grain from falling too low, to the discouragement of agriculture, the Corn laws, at a certain rate of price, prohibit importation; and, in proportion as the price sinks still lower, allow of exportation, or encourage it with a less or greater bounty. To prevent, on the other hand, the price from advancing too high, to the discouragement of manufacturers, the ports are opened for importation, and exportation is prohibited, at a certain height of price; and, in proportion as the price increases, a less or greater bounty is allowed upon importation. A system, thus professing to embrace, at once, two objects of such important magnitude, as the encouragement both of the agricultural and the manufacturing interests of the country, wears a most alluring appearance, highly fascinating to the imagination of every man of public spirit, and enlarged views. It seems doubtful, however, if the effect corresponds to the magnificence of the profession.

The intention of the Corn law system, seems to have been, by force of continual interference of regulation, to keep the prices as near as may be to a medium; either the natural medium of the market; or, perhaps, (as near as could be guessed), to a medium a little exceeding the natural, in favour of home agriculture; or a little below it, in favour of manufactures. It seems, however, exceedingly difficult to ascertain the natural medium in a commodity so fluctuating in price; and, of course, to fix the existing rates of market at which exportation or importation should be encouraged or prohibited, so as to be certain, whether the regulations, so far as they go, shall have the effect intended, or an opposite one; unless, indeed, a medium is intended so widely deviating from the natural, as to allow of no risk of mistake;

which, however, seems never to have been the object in view. It seems also equally difficult to come at the real state of the existing rate of the market, from a proper classification of the country into districts, from whence to take returns, upon which to form an average; as also to obtain the true return, when such classification has been made. To take the return, meanwhile, from particular ports, without a general average of the country, either as the rule for opening or shutting that port, or other ports, would seem to lay the system open to the interested machinations of individuals, or small combinations. It is evident, also, that the rates fixed upon, must be altered from time to time, according to the difference of the value of money; and that, too, at shorter periods, in proportion as the medium fixed upon as the one aimed at, deviates little from the natural.

A system, embracing such a multiplicity of objects, must necessarily be complex in its arrangements, difficult in execution, and probably open to more sources of error, in proportion to its complexity—and the question still recurs, *Cui bono?*

If, as has been alleged, the quantity of import and export of grain bears but a very inconsiderable proportion to the internal consumpt of Great Britain; in that case, the effect of all regulations must be inconsiderable. But, farther, laws of this nature have, indirectly, a reaction, which, in a great measure, balances the action they are intended directly to produce. In encouraging, by a bounty, exportation in cheap years, they *force* out more of that plenty than would naturally have flowed out of itself; and, consequently, prevent, so far as their operation goes, the remainder of that plenty, which otherwise would have rested, from alleviating the dearth of a succeeding year of scarcity. In like manner, in dear years, the importation *forced*, by a bounty, above what would have been imported from cheaper countries, from a view to the profit naturally afforded by the high price of the home market, has an equal tendency, so far as it goes, to depress the prices, in succeeding years of plenty and cheapness, below the level to which they would have fallen. If these interferences had any sensible effect in heightening natural tendencies, it would seem, therefore, to be of a double nature, and to operate to the heightening of prices in a dear year, and lowering them in a cheap year; as well as to heightening them in a cheap year, and lowering them in a dear year.

If Corn laws are intended merely to keep the markets at their natural medium; as their effect must be inconsiderable any way in heightening those tendencies, which operate of themselves; and as the excess of effect produced by them, above that of natural tendencies, tends as much, in one way, to disturb, as, in another, to preserve the equilibrium; in all probability, it might be as well to leave things entirely to their natural course; except, perhaps, in cases of very distressing dearth, when it might be proper to increase that importation, which would naturally take place, by a bounty; though, even in such cases, much discretion is necessary; and all bustling should be avoided, lest violent interference should excite alarm, and (as in season 1795) augment those evils it was intended to cure.

When the difficulties of framing a system upon proper principles are considered, and the chance of its being erroneous from the first; the complicated arrangements necessary to keep the system agoing, with the numberless chances of error through the whole detail of practical execution; and the small effect to be produced in all ordinary cases; it will probably appear, that a continually operating system would be attended with no benefit which would counterbalance the trouble of putting the regulations in force; and that no interference is requisite, but in extreme cases of dearth or cheapness.

The market of corn is always precarious; but the constant intermeddling nature of a system of continually acting regulations, (which, upon small variation of price, interfere, by bounties or prohibitions, on one side or the other, to change the *data* of the merchant's calculation), has apparently, in some degree, a tendency to introduce greater uncertainty into the trade; making it become more a subject of gambling speculation to desperate adventurers, and excluding from it all the more steady, and sober-minded.

Considerable alarm, in regard to the declining state of agriculture through the kingdom, seems to have been excited by the publication of Colonel Dirom, upon the Corn Laws 1790. From that publication, it would appear, that, from the year 1688 till about the year 1750, (a period, during which the Corn Laws were most favourable to exportation, and inimical to the importation of foreign grain), our export of grain gradually increased, till it rose to an annual average of 800,000 quarters above our imports; but that, from that period, a melancholy reverse took place, in consequence, as is alleged, of a change of system to one less favourable

vourable to exportation; till at length, during the twelve years from 1773 to 1784, the balance against exportation arose so high, as to amount to an annual excess of 355,176 quarters imported, above what was exported; and, from that period till 1793, to about 546,408 quarters. A publication since appeared in 1797, by the Reverend John Howlett, entitled, *Dispersion of the gloomy apprehensions of late repeatedly suggested from the decline of our Corn trade; and conclusions, of a directly opposite tendency, established, upon well authenticated facts.* This work, in its execution, seems to come up to the profession of its title. As 800,000 quarters were formerly exported, and 546,000 are now imported, it is evident, that the proportion of the grain consumed, to that raised, exceeds *now* the proportion in 1750, by both these sums, or by 1,346,000 quarters annually. When, however, it is considered, that, since the year 1750, the population of Great Britain has increased, probably by 2,500,000; that in consequence of increasing wealth, the whole population are better fed; that the increase of consumpt of butcher meat has so augmented, as that, upon a moderate computation, 300,000 more of sheep are annually killed, 60,000 of oxen, and 40,000 of swine: when it is also considered, that the additional number of high-fed horses *now* kept for pleasure, for travelling, and for transporting commodities, above what were kept for these purposes in 1750, amounts, upon a probable calculation, to 400,000; it will appear, how very little length these 1,346,000 quarters of grain would go to the support of this prodigious increase, both of men and animals, which must subsist upon the produce of land. The support of this great excess of men and animals, certainly then indicates a proportionally increasing progress in agriculture, without taking into account the increase of working cattle, which is inferred in increase of agriculture, nor the additional number of animals kept to supply the increasing demand for the productions of the dairy, nor the increased maintenance of the navy and army. Mr Howlett appeals to every one's experience of what he sees around him, to decide in regard to the progress or retrogradation of agriculture. He seems of opinion, that Corn Laws cannot have any considerable influence in any way; but alleges, that as improvements in agriculture have continually increased since the Revolution, and that as Corn Laws (of the best construction, according to the notions of the favourers of them) have, at different portions of that period, existed; an

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opportunity is thus afforded, of confounding mere *coincidence* with *causation*; but that agriculture will be found still to have gone on progressively improving, equally during that portion of these periods, when the Corn Laws are supposed to have been hostile, as when favourable. That if Corn Laws had any particular effect, it would chiefly appear in keeping the market price steady; but that, even in those periods, when Corn Laws are supposed to have operated to the best effect, the prices appear to have been subject to equal fluctuation, as at any other period; as vouched by the tables produced by those who would wish from thence to shew their beneficial effect,—That the price must depend upon the seasons sent by Providence, and is but little determined by the controul of human contrivance in the way of regulation.

On the Policy of fixing a Legal Rate of Interest.

From the same.

It is, without doubt, proper, that a legal rate of interest should be fixed at different periods, *as near to the existing market rate as can be guessed;* to take place in all such cases, as afford no opportunity of making an optional bargain. Where, however, there is an opportunity of voluntary agreement, there seems just as little need of legislative interference in settling the terms as to the price of the use of money, as in regard to that of any other article in commerce; in all which cases, the terms may be left, with equal safety, to be settled at the discretion of the parties concerned.

Where capital, properly employed, yields a profit; it is certainly equitable, that this profit should be shared betwixt the advancer of the capital, and the person who profitably employed it; being the joint product of the one's capital, and the other's industry. Even if borrowed, merely to spend it, it is just, that its owner should receive for its use, what he would have received from one who should have employed it, so as to replace itself with a profit; in the same manner, as it would be equitable in the proprietor of a horse to exact the same fare from one, who hires him for a pleasure ride, as from another, who hires him to work in his plough. What is given in charity, or lent in friendship,

is out of the question. In the case of money lent for hire, for mutual accommodation, upon mere principles of equity, it seems perfectly just that the hire or interest should not be determined in an invariable specific proportion to the capital advanced, or at so much *per cent.*; but that the lender should receive more or less, in proportion to the profit which the use of money can afford: Nor can any standard be devised for apportionating the respective shares of profit betwixt the borrower and lender, but the existing rate of the money market. Where capital is scarce in proportion to industry, and its profits consequently high, an higher rate of interest will be afforded by the industrious for the use of capital: Where the reverse takes place, the rate of interest must be beat down by the competition of capital for employment: Nor does there appear to be any iniquity in demanding more, or offering less for the use of money, according as the market will allow, than for any other article in commerce. All laws counteracting these natural tendencies, will themselves be counteracted. Laws, fixing the *maximum* of interest, and condemning an higher rate under the name of usury, are evaded in disguising the interest received under the names of *premiums for the risk*, copartneries, &c.—devices, to which the conveniency of traders will give rise, and which the laws will afterwards recognise and sanction, as exceptions to the general rule.

Laws, in regard to the markets of grain, originating in mobbish instigation, have sometimes fixed a *maximum* price, but never a *minimum*: In the same manner, laws, in regard to the use of money, have, in every country where they exist, shewn an anxiety merely to fix a *maximum* rate of interest, and to brand all excess with the imputation of criminality; and probably, in almost every language, there is a term equivalent to the term *usury*, and, like it, implying blame. It seems probable, that laws against usury have generally been enacted, when legislators were either money-borrowers and spendthrifts, or idle beggars.

The legal rate of interest is different in every different nation; it has varied in every particular nation, at different periods: The criminality of usury cannot then consist in exacting five, ten, or twenty *per cent.* for the use of money; but in exacting more than the usual rate of the market. In all optional transactions, the rate of interest might certainly be left to the discretion of parties, as well as the rate of any other marketable commodity: Nor does there appear

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any call for the statutory construction of fraud, *in the exaction of more hire for the use of money than the market rate*, into a specific crime; more than in that *of exacting more than market rate for the use of a horse, or the day's labour of a man.* There seems even less necessity for legislative interference to guard against imposition in bargains about money, than in bargains about almost any other species of commodity: For, whereas the quality of every other commodity may vary *ad infinitum*, under one and the same denomination; the denominated money, specified in the bargain, is always of an ascertained value at the time. The horse I hire, or buy, may be in any degree serviceable or unserviceable; and the workman I hire, may perform a good or bad day's work; but the number of guineas or shillings, for the use of which I contract, must prove, upon delivery, exactly what I contracted for.

Art may, no doubt, take advantage of ignorance and simplicity, in exacting more than market value for the use of money, as well as in other things. There seems however no assignable reason, why such frauds might not be left to be profecuted at common law, as well as other frauds.

PART

PART IV.

Agricultural Intelligence.

The weather, during the two first months of the Summer quarter, was uncommonly dry; and apprehensions were generally entertained that the growing crops would thereby be stinted and injured. The genial rains, which prevailed in July, have, however, in a great measure, removed these apprehensions; and, if succeeded by sunshine and heat, there is great cause to hope, that, except upon the dry gravelly soils, a full average crop will be reaped.

The severity of the drought curtailed the hay crop in several districts, and rendered the pasture fields barren and unproductive. Hence, the prices of fat cattle and sheep have continued very high; nor is there much room to believe that full markets will be procured for some time, as the usual sequence has been limited by the scarcity of lean stock, and the poverty of the pastures. The greatness of the demand has occasioned cattle to be slaughtered as fast as they were ready for the knife; and perhaps less land is under grass this year than ordinary, as the high price of grain occasioned an extension of tillage in many places.

Few seasons have permitted the naked fallows and turnip lands to be so well wrought as the present one; and the quantity of acres sown with turnips is, perhaps, greater than hitherto known. The drought, however, has been unfriendly to the braird of this valuable plant upon the hard lands; and, except upon soft soils, the appearance is not very promising. Potatoes are this year greatly affected with the *curl*, which perhaps proceeds from the general ripeness of the root last year—no other cause can be satisfactorily assigned.

The grain markets have fluctuated much in the course of these months. In May and June, when large importations of American flour took place, a great declension was felt; but, of late, the rise has been equally rapid, especially in the article of wheat. Without these immense importations,

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an absolute famine would have prevailed; it being computed, upon good authority, that their extent, in wheat and flour, has been equal to one half of what the market could receive from the produce of last year's crop.

Notwithstanding the perilous situation in which the country has stood, for the two past years, with regard to a supply of provisions; and that the nation, in the course of twelve months, has been drained of ten millions of money, in purchasing supplies, to make up for the deficiency of our own produce, it gives us pain to remark, that no effectual measure has been taken to prevent a repetition of such calamities. It is obvious, that an extension of tillage is the only method by which they can be averted; and that this extension can only be accomplished, by bringing into cultivation a portion of the land presently called *waste*, which, in numerous instances, is capable of yielding the most prolific crops. Expectations were universally entertained, that some means or other would be used to remove the legal obstacles which stand in the way of these lands being cultivated; but, we are sorry to say, they are not realized. So far from that, the laudable endeavours of those who promoted and recommended a melioration so beneficial, have been reprobated and stigmatized, and that by persons without whose aid it is unnecessary to expect it can be accomplished. In a word, not a shadow of hope remains, that any other system will be adopted for bringing these lands into a cultivateable state, than the tedious, expensive and complicated one practised since the days of William the Conqueror. Instead of cutting the Gordian knot by a single stroke, we will fumble and work away in attempting to loose it; and, according to calculations that have been made, it will take two centuries to accomplish an object which might be attained by one simple enactment.

To what are we to ascribe the aversion manifested against a general division of the waste lands? Does it proceed from a fear, that, by extending the breadth of cultivateable land, the value of the article, or that of the produce arising from it, will be lessened? If this were really the case, our conduct would be something similar to that of the Dutch inhabitants of the Spice Islands, who are said to burn their commodities, in order that the market may not be overstocked. Or does it proceed from the apprehensions of another class, that their revenues would be lessened in consequence of such lands being exonerated from certain burthens,

burthens, to which the old cultivateable lands are generally liable? The increase of luxury and population will effectually prevent a depreciation of the value of old cultivateable land, allowing that every field in the kingdom was improved: and as for the interest of the other class, it does not appear how any injury could be sustained by them, in consequence of a division; nay, rather, it is evident, that they would be benefited, in an extraordinary degree, by the portion set apart for their behoof, in the event of such a measure being adopted.

We have not learned whether the Board of Agriculture have adjudged the several premiums offered for Essays "upon the best method of converting grass land to tillage, and restoring it to grass in an improved state;" nor that any measure has been taken by them, in consequence of the recommendation of the Committee of the House of Lords, further than offering these premiums. We confess, we were not very sanguine that much good would follow the recommendation, though it was undoubtedly well meant. Unless under the pressure of difficulties like those experienced for two years back, no temptation can be strong enough to induce English proprietors to allow their grass lands to be broke up, so long as the tithe system continues upon its present footing. It is demonstrable, that the extra tithe, which in that case would be payable, is nearly equal to the increased rent that would be drawn; therefore, however much the public would be benefited by such a conversion, (and we confess the benefit would be immense), still, the individual proprietor would derive little advantage from breaking up these lands, seeing that the increased rent would chiefly be pocketed by a third person, while the land would be exposed to waste and deterioration in consequence of the conversion.

Extracts from Original Communications.

SCOTLAND.

A Scotch gentleman, on a tour through the West of England and Wales, writes to the Conductors, of date July 11, as follows:

"In an excursion which I have made from Edinburgh, by Hawick, Carlisle, Lancaster, Chester, Shrewsbury, &c. I have uniformly

formly found that the wheat crop is excellent, and that oats, on all the mooriſh and damp ſoils, are alſo good, though they have generally failed on the gravelly and ſandy lands, in the ſame degree as laſt year. Barley is but indifferent; few inſtances of a good crop: In Wales, it is beſt. Rye has all along been good. So few peas and beans are ſown, in the tract through which I paſſed, that theſe grains are not worth mentioning. Very little artificial graſs is to be ſeen after paſſing Middleton, in Mid-Lothian; but the meadow hay is generally good. Turnips were pretty forward in the Scotiſh part of the tour, and in Cumberland and Weſtmoreland; farther ſouth, a few fields are only diſcernible, and theſe they are ſtill ſowing in the broad-caſt manner. Potatoes have abounded in the whole tract, particularly in Lancaſhire and Cheſhire; and, were it not for the almoſt univerſal practice of planting them in lazy beds, *as thick as a bed of onions*, from the great appearance of the foliage, a prodigious return might be expected. The *curl* prevails, leſs or more, among them, every where. Paſture graſs, owing to the vehement drought, has been burnt up on all the light lands; but, on moſſy and ſwampy ſoils, the appearance is excellent; and the *crop* of cheeſe is expected to turn out well. Fruit is, this ſeaſon, much better than laſt; yet they talk that it has failed farther ſouthward. With reſpect to the forwardneſs of the harveſt, you will be ſurpriſed to learn, that, except in Cumberland and Weſtmoreland, it will be later than in Mid-Lothian, particularly in the counties of Cheſter, Salop, and Montgomery, where they will be at leaſt a week behind us.—*(See farther Obſervations by the ſame gentleman, p. 353.)*

Extract of a Letter from a Gentleman in Dumfries-ſhire, 13th July.

"We had an agreeable ſeed-time; but, from the middle of April to the 1ſt of July, received little or no rain, which has injured our crops, eſpecially thoſe in the lower parts of Annandale, exceedingly. Three nights of froſt, viz. on the 10th, 11th, and 12th June, deſtroyed the braird of turnips, and blaſted the potatoes, particularly thoſe ſheltered by woods and hedges; in expoſed ſituations, they eſcaped, in conſequence of the wind preventing the hoar froſt or *rime* from remaining upon them. We don't ſow much wheat; but what we have, looks to be good, as the ground, by being early covered, kept out the drought. We have a few oats ſtill in hand, which ſell from 6s. to 7s. 6d. *per* Wincheſter buſhel; but as for barley and wheat, none of theſe grains are, I believe, in the country, except in the hands of the manufacturers. It is a pleaſant circumſtance, that harveſt is ſo near at hand, that the country may meet with relief from the diſtreſs ſo ſeverely felt. I ſhall cut both barley and wheat by the end of the month, if the

weather proves favourable; but the recent rains, which have mended our proſpect in many reſpects, may probably retard that important piece of rural labour longer than we imagine.

"Great improvements are going forward upon Earl Mansfield's lands in *Lochar Moſs*, and I hope the ſucceſs will be equal to the vigour and ſpirit diſplayed in the ſeveral undertakings. I could wiſh to ſee a general ſpirit of improvement diſſeminated among our great people, as ſo much of the country might be improved with advantage, both to them and to the public. I notice, that Lord Carrington's bill for facilitating the diviſion of, and incloſing, the waſte lands in England, is poſtponed; which will be a national loſs, as more money has been expended in purchaſing foreign corn, within theſe two years, than would be required to improve all the waſte lands of the kingdom."

Caithneſs Quarterly Report.

The weather, during the months of April and May, being favourable, ſeed-work of all kinds was accompliſhed in a very perfect manner. In June, the weather continued alſo dry, which admitted complete juſtice being beſtowed in working the turnip land; and, within theſe eight days, we have had moſt ſeaſonable rains, which, it is truſted, will procure us an abundant crop.

Prices of grain declined a few weeks ago, but they have again advanced conſiderably. It is believed the advance will not continue, as the potatoe crop is at hand; upon which root the lower claſſes are chiefly ſupported. Hay is ſelling at 12d. and 14d. *per* ſtone from the tramp rick. Black cattle are higher than the oldeſt man living in this county remembers, and the demand very great; circumſtances much in favour of the Highland parts of the county. A great number of lean ſtock remaining on hand, when the advance took place.——*July* 11.

We have been favoured, by a friend, with the following extract of a letter from a gentleman in Ireland, dated *Fermy*, *27th June* 1801.

"There is certainly, in this country, an excellent field for agricultural improvement. The ſoil is in general better, and much more uniform, than in Scotland, being moſtly of a light nature, a great part of it upon limeſtone, and very eaſily worked; but then we want *ſecurity*. Under good management, excellent crops of all kinds are produced, as the ſoil is admirably adapted to the moiſtneſs of the climate. This is evinced by the greatneſs of the wheat crops upon the high grounds; and by the productiveneſs of the orchards, of which we have a conſiderable number in this neighbourhood.

bourhood. We have no ſuch things as clay or carſe ſoils. The diſpoſition of the proprietors in favour of reſpectable tenants, is conſpicuous, and no objections to long leaſes (ſay for 99 years, or for three lives and 31 years) are offered. The moſt reſpectable profeſſional people are thoſe upon ſtore farms; and, in the counties of Limerick and Tipperary, they are numerous. The inſecurity in this country, ariſes from diſpoſſeſſing the old tenantry, who will rather ſtarve as maſters, than live comfortably as ſervants; but, in ſome places, farms are to be had where this circumſtance does not operate; and, in ſuch ſituations, the ſpeculation generally turns out well. The ſervants here are much the ſame as with you, not the worſe of being looked after; but I find them apt enough to learn any thing, and I have three or four as good ploughmen as may be deſired."

Roxburghſhire Quarterly Report.

The crop was rather in a tickliſh ſituation of late; and it is difficult to ſay, to what extent it may be benefited by the rains which have lately fallen. The wheats look well, ſo does the barley. Oats, both early and late, are very ſhort; but, after all, promiſe a fair return *per* acre. Beans and peas ſet well. Potatoes have greatly recovered within theſe few weeks, and may be expected more prolific than they were in the two preceding years. Clover and rye-graſs, for hay, are but indifferent; but the meadow lands will yield a decent crop: of theſe, we have only a ſmall quantity. Turnips brairded partially; and upon the hard lands, they have but lately appeared. If the turnip crop had been generally good, there is cauſe to believe, that ſtock to eat them would not have been procured, this county having been more drained of lean beaſts than at any time within our remembrance.

At *Yetholme* fair, lambs ſold at the enormous advance of eight and ten ſhillings above laſt year's prices. Black cattle, of all ages, and milch cows, likewiſe ſell very high, and continue upon the advance. Prime beef is worth 8d. *per* lib., which is a ſure proof of a ſcarcity.

Long wool has been much wanted, and, of courſe, has been bought up at a conſiderable advance; the riſe upon ſhort wool is not ſo great. Few ſalmon have been caught this Summer in the Tweed, owing to the great drought, which rendered the river ſmaller than common; but ſince the rains, they are getting them in great quantities. We have little grain; and at Berwick, they are obliged to ſupply themſelves by importation, which is a very uncommon circumſtance.——*July* 17.

Dumfries Quarterly Report.

The corn market, ſince reaping the laſt crop, has varied conſiderably. Along the weſt ſide of the iſland, the crop appeared, and turned out better than an average: And farmers, unacquainted with the deficiency on the eaſt ſide of the country, began with ſelling very far below the prices of the preceding Summer. In October and November, oat meal ſold from 3s. 4d. to 4s. the ſtone—Barley did not exceed 7s. the buſhel, till Chriſtmas. From that time, it roſe till March; when oat meal was at 5s. 10d., and barley at 10s 6d. From March till June, they fell gradually to 4s. 6d. the ſtone for meal, and 8s. the buſhel for barley; which ſeemed to be occaſioned by the good ſeaſon, and the battle of Copenhagen. In June, the drought, and particularly the froſts, raiſed the prices again; and they are now about 5s. for oat meal, 4s. for barley meal, and 8s. 6d. for barley. Wheat is not a general crop in Dumfriesſhire, but is more ſo than it was a few years ago: It was very good laſt year, and the prices have been much about the rate of the Haddington market. Potatoes were generally a ſmall crop, particularly on light grounds. They were good in quality, and were kept up by the farmers at extreme prices. Through the Winter, and early part of the Spring, they were ſo high as 5s. the cwt. Very many, however, miſſed their market; and, in April and May, had to ſell as low as 3s. and 2s. 6d.

The preſent crop of all kinds ſeemed to offer extremely well till June, when the drought appeared to injure every thing upon light lands, particularly upon ſandy gravels; and more eſpecially thoſe along the coaſt, and in the lower parts of the county: while the ſtronger lands, in good order, were not materially affected. The froſts, in the nights of the 13th and 14th June, were pretty general, and gave a check to potatoes upon low and flat grounds. The moderate rains, which came in the beginning of this month, and ſtill continue, have revived the potatoes, and all other crops; and they are now as forward and promiſing, as they have been in the recollection of any perſon. Even the potatoes, which appeared to be injured by the froſt, have got the better in a great degree; and it is my own opinion, they will be a good crop, though ſome people think otherwiſe. Oats, from the good ſeed time, and kindly ſtate of the land, and the perfect quality of the ſeed, ſeem remarkably cloſe; and the early oats, which are generally of the Friezeland kind, are forward and regular. Common oats, which were late in ſowing, are leſs ſo. The new kind of oats, called *Potatoe oats*, which are not ſo forward as the early, nor ſo late as the common oats, ſeem alſo very abundant; and promiſe to be a great acquiſition, if they have not defects which are not yet obſerved.

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But they were ſcarce known till laſt year, and the ſeaſon was ſo favourable in this part of the country, that nothing could be injured. The produce of them, laſt year, was from ten to twenty fold: and I have heard of much more. They are very generally ſown this year. In three months hence, you may be informed more particularly of their produce, and nature. Wheat appears a very abundant crop; and barley has not at any time looked better, or more forward. Nothing but wet and cold weather, in the two enſuing months, can, in all likelihood, prevent one of the earlieſt and moſt abundant harveſts that has been in the memory of man.

The price of live ſtock, of all kinds, ſet out high in the Spring, and has increaſed gradually till the preſent day. Cattle, particularly thoſe of age to be fed the preſent ſeaſon, are beyond the price of any former time. Sheep of all kinds are ſo alſo; but more particularly lambs, and year-olds. Wool markets, for this year's clip, are juſt opening; and conſidered to be, at preſent, about 10 *per cent.* above laſt year. *July* 17.

Aberdeenſhire Quarterly Report.

The laſt three months have preſented weather of various kinds; perhaps of more oppoſite tendency, than hitherto known in this county. Part of April and May were dry, with froſt in the night-time, which kept back the growth of graſs, and deſtroyed the bloſſom upon fruit trees and buſhes. The remainder of May, and firſt week of June, were moiſt and warm; but ſucceeded by 18 or 20 days of cold ſtormy winds, accompanied with flying ſhowers of half-melted ſnow. Since that time, we have had frequent rains, with a mild atmoſphere, which have mended the crops in a ſurprizing degree.

Hay is a very light crop; and from the recent wetneſs, will hardly be got cured for the ſtack in tolerable order, but a fine fog may be expected. Barley is rather thin on the ground. Oats, which lately looked as if the fire had gone over them, are now recruited aſtoniſhingly. In reſpect of fodder, they cannot be conſidered in any manner as bulky; yet, as they are cloſe upon the ground, they promiſe to be rather more than an average crop. There never was a better ſeaſon for dreſſing turnip land, but the ſeed ſown had not moiſture to vegetate, till the rains came; which, of courſe, will render the crop late and precarious. Cattle of every deſcription have ſold at higher prices than remembered; and as the ſtock on hand, from the failure of laſt year's crop, is very limited, we have cauſe to believe, that the advanced rates will continue, till matters come round to their ordinary level. *July* 18.

Middle Ward of Lanarkſhire Quarterly Report.

The ſtormy weather in the month of March, mentioned in laſt report, was ſucceeded by a very favourable ſeed-time; which became general in this part of the country on the firſt week of April, and continued, with very little interruption, till the whole of the ſeed was depoſited in the earth. The greater part of the oat and bean ſeed being finiſhed in the courſe of two weeks, the continued dry weather afforded abundant opportunity for preparing the land intended for potatoes, which have been planted in very large quantities; perhaps, more than ever known in any former ſeaſon. Our clay land has ſeldom been known to be in better condition, or to yield more readily to the harrow; which has enabled it to reſiſt the long drought, much better than light land on a dry bottom.

The wheat crop looks well. Oats vary very much on account of the long drought, and appear to have little ſtraw on dry land. Barley is a light crop. Beans and peas look tolerably well. Hay in general is very light, and can ſcarcely be called above half an average crop. Potatoes are at preſent but middling, and are much ſtinted in growth, in conſequence of the ſevere froſt in the month of June; though they have ſuffered leſs *here*, than in the Upper Ward of this county; the *curl* prevails in many places. Great hopes are entertained, that the late abundant rains will recover and improve the crop. Upon the whole, in ſo far as can be judged at preſent, there appears to be a fair average crop; and, as the extent of tillage far exceeds the uſual quantity, there is little doubt that the preſent crop will have the deſired effect to reduce the extravagant price of grain.

July 18th.

Extract of a Letter from a Young Gentleman, who lately viſited the Northern Counties.

We croſſed the Queenſferry the 16th ult., and ſaw nothing worthy of obſervation, till we reached Stratherne. Crops there, in general, looked well. Wheat particularly ſo. Hay alſo ſeemed a very good crop. We next travelled down that rich corn diſtrict of the Carſe of Gowrie, from Perth to Dundee. One half of the Carſe ſeems under wheat, and promiſes vaſtly well: Although not very luxuriant, nor likely to lodge; yet, it appeared ſufficiently abundant for a favourable after ſeaſon. Oats ſcarcely a middling crop. Little barley, and not good. Peas and beans moſtly broadcaſt, and very indifferent. That part of the county of Angus which we paſſed through, from Dundee to Montroſe, being uniformly dry gravelly ſoil, had ſuffered moſt ſeverely, even at this early period of the ſeaſon (the 19th June), by the drought. Crops, conſequently, which

which conſiſted chiefly of oats and barley, much ſtinted. Hay crops very light, and paſtures very brown. From the continuation of the dry weather, and the ſituation of the crop of that part of Angus at the time we viewed it, all kinds of crops there muſt unavoidably turn out light. The ſeed ſeaſon, this year, having proved remarkably favourable for the Mearns, contraſted with Angus, their crops looked very well and freſh. I muſt not omit mentioning having ſeen ſome excellent fields of wheat in the neighbourhood of Montroſe; but with regard to other crops, they are very middling. Throughout Aberdeenſhire the crops looked very indifferent, till we got to the diſtrict of Buchan; where things appeared conſiderably better. The farmers there were complaining very much of the drought; but ſtill I don't think their crops were ſo far gone, but the late rains would be of material ſervice to them, and yield one apparently above an average. Superior cultivation exhibited ſome very good crops in Banffſhire. Murrayſhire, in general, was much hurt by the dry weather. Crops there, of every deſcription, looked very light; and, I am afraid, would prove irrecoverable. In the vicinity of Inverneſs, the land, conſiſting of the ſame dry ſoil, had ſhared the ſame fate. Saw ſome excellent crops of wheat in the neighbourhood of Cromarty. In Eaſt Roſs, the ſmall quantity of wheat we ſaw was excellent. Oats, in my opinion, would turn out, with the aſſiſtance of the late favourable rains, above an average crop. I cannot offer you my remarks on the turnip crop, as, all the way as we paſſed, till we got to Tarbetneſs, the moſt eaſterly point of Roſsſhire, the 3d of July, they were only finiſhing ſowing, and ſtruggling with the dry weather, to effect a braird. Returned by the Highlands to Stirling: Travelled down the Carſes of Stirling and Falkirk. Wheat and beans in theſe diſtricts are a moſt abundant crop; hay very good; oats but middling; and barley very indifferent. What ſtrikes me, as a general obſervation reſpecting the crops we have ſeen in our tour, is—wheat an excellent good crop, far above what I ſhould ſuppoſe an average; peas and beans bulky; hay conſiderably deficient; oats and barley will ſcarcely ſuſtain an average; and potatoes will certainly exceed it. Much attention ſeems to be beſtowed in cultivating this laſt and moſt uſeful plant; and the beautiful proſpect promiſes amply to repay ſuch requiſite induſtry.

East Lothian Quarterly Report.

Previous to the general rains, which prevailed from the 1ſt to the 18th July, the crop of this county, particularly upon the dry ſoils, was in a critical ſtate; and, with the exception of Winter ſown wheat, which had covered the ground, was fairly at a ſtand. The full ſupply of moiſture lately received, has now occaſioned a

remarkable change upon the face of the country; and, being ſucceeded by warm weather, gives us cauſe to expect an early and abundant harveſt.

Of all the grains, beans are worſt; being neither bulky, nor well podded: but the deficiency will likely be compenſated by the ſuperiority of the peas crop, which has a moſt flouriſhing appearance. Several farmers have, this year, ſown that variety of oats called the *Potatoe oat;* and the change promiſes to be attended with eminent advantage. This kind of oats is ſpreading faſt over all the ſouthern counties of Scotland, and threatens to ſupplant the Polands upon the fertile ſoils. Theſe laſt have, of late, degenerated; being ſmaller in the grain, and rougher in the huſk, than when originally introduced into this country, about eighteen years ago. We are ſorry to add, that, ſince the late rains, the appearance of mildew hath been diſcovered upon the wheat; but the extent of the evil cannot yet be aſcertained.

Though the hay crop turned out very poorly, yet the general appearance of a full ſupply of other fodder has occaſioned a depreſſion of prices, below what was expected. Paſture lands have hitherto been barren and unproductive; but they have now aſſumed an improved aſpect, and promiſe a full ſupply of Autumn graſs.

Prices of ſtock, both fat and lean, ſtill keep up; and, from general circumſtances, it is to be apprehended no declenſion will take place for a conſiderable time. A great extent of land was ſown with turnips and roota baga this year; but the ſeverity of the drought occaſioned an imperfect braird upon all the hard lands. Potatoes have but a middling ſhow; and curled ones are very numerous.

The grain market has varied much during the Quarter, eſpecially in the article of wheat; which, after a conſiderable fall, has again riſen nearly as high as mentioned in laſt Report. Oats are in few hands; but the demand is much leſſened, by the immenſe importations from England and foreign countries. The corn trade of the kingdom, for two years back, has ſet all experience at defiance; but, in a few months, it is to be hoped that matters will return to ſomething like their ordinary level, when buſineſs will be conducted with ſteadineſs and preciſion.—*July 20th,*

Morayshire Quarterly Report.

One of the fineſt ſeed ſeaſons ever recollected in this county, both for Winter and Spring grain, was ſucceeded by a tract of extreme dry and windy weather, which threatened deſtruction to crops of every deſcription; but, for the two bypaſt weeks, we have had abundance of rain; and the wheat, oats, peas, and beans, on rich land, are completely recovered, and, on this deſcription of ſoil, will be a full average crop, while, in dry ſandy ſituations, both grain and

and fodder muſt be rather deficient. Hay is almoſt as ſcanty as laſt ſeaſon, but we have now ſufficiency of paſture graſs; and cattle of all deſcriptions have a briſk ſale, at enormous prices. Potatoe is a remarkable good crop; and a finer turnip ſeaſon was never known. Grain, which had fallen conſiderably, has of late become very ſcarce, at advanced prices. Beef and mutton, 6d. to 7d. *per* lb. Dutch.

20th July.

Berwickſhire Report, from March 28th to July 21ſt, incluſive.

We had a long continuance of dry weather previous to the month of July, with a frequency of cold winds at north and eaſt, which rendered vegetation very ſlow. Towards the middle of June, the hoar froſts were ſo ſtrong, as to damage early potatoes, and blaſt the young ſhoots upon thorn hedges that had a northerly expoſure. The paſtures upon dry gravelly ſoils were quite brown by the end of the month; while barley and oats, in ſimilar ſituations, began to ſhew the ear, though ſcarcely ſo high as rank ſtubble.

The rains which commenced with July, have given a freſh verdure to the ſun-burnt graſs, and made grain of all kinds ſhoot away vigorouſly; but the crop was ſo far advanced, before they ſet in, as to preclude the hope of ſeeing a full weight of ſtraw upon the ground this ſeaſon.

Hay harveſt would have been pretty well advanced, had it not been retarded by the wet weather, which will, however, prove favourable to the growth of aftermath. The crop turns out very light, and univerſally deficient in clover. It has been ſelling, from the rick, at 1s. *per* ſtone of 22½ lib. Engliſh.

Several fields were ſown with turnip about the end of May, and, in general, made a good braird. Thoſe ſown towards the middle of June (particularly where the ſoil contained any mixture of clay) did not vegetate ſo equally. The blanks have indeed filled up ſince the rains, but make little progreſs in growing: the ſeeds, however, that ſprung immediately after ſowing, and all the early fields, are in ſuch a thriving ſtate, as to promiſe an abundant crop.

The wheat crop has every where a luxuriant appearance. Barley, particularly where it was early ſown, wears alſo a promiſing aſpect, though it will, in ſome caſes, be deficient in length of ſtraw. Oats, in general, promiſe to be a fine crop, though, like the barley, they will, in many caſes, be ſhort in the ſtraw. Beans are every where looking well, and peas are very luxuriant; but, excepting fields that were ſown with Engliſh ſeed, they, for the moſt part, bloſſomed late. The potatoe crop never wore a more promiſing appearance, being generally luxuriant, and very little infected by the curl; and the dry weather having admitted of complete

juſtice

juſtice being done to the turnip and naked fallows, the latter are, in general, in a high ſtate of preparation.

Clover ſeeds made a fine braird, and do not appear to have ſuffered from the drought, as they did laſt year.

There having been a continued demand for ſtock to the Engliſh paſtures all this ſeaſon, prices have, in conſequence, been high. Year old ſheep (provincially hogs) were from 3s. to 4s. a head above laſt year, and other ſheep in proportion. At Dunſe June fair, lean cattle ſold extravagantly high, and have continued ſo, with little variation, at all the recent markets.

Wool, in general, did not turn off much above laſt year's weight, but has experienced an advance in price, equal to 18 or 20 *per cent.*

Inverneſſhire Quarterly Report.

SINCE the month of March to the 8th inſtant, we had no rain worth mentioning; and, of courſe, our crop ſuffered exceedingly. Both corn and graſs, in many places, were quite withered; but a wonderful change has taken place upon them, ſince the late rains. Wheat, barley, and peas, promiſe to yield an average crop. Oats are but light; ſo is hay: but the fog looks remarkably well. Potatoes got a ſevere check from a hoar froſt, on the 16th June, but are now much recovered. Turnips are thriving, and chiefly out of danger. Our preſent proſpects are certainly favourable, though much depends upon the after ſeaſon.

Owing to the great demand, and extraordinary high prices that have been given all this ſeaſon for black cattle, I imagine the Highlands of Scotland were never ſo completely drained of lean ſtock. Beef and mutton ſell from 5d. to 7d. per lib.; and all other neceſſaries of life equally dear.—21ſt *July.*

Perthſhire Quarterly Report.

DURING the whole month of May, vegetation made a moſt rapid progreſs; and the grain crops appeared very luxuriant in many places. The drought in June, however, completely checked this exuberant vegetation, and changed the fine lively green, which decorated our fields, into a ſickly and pale hue, much the ſame as what they exhibited laſt year. Happily for us, July brought abundance of moiſture, and reſtored decayed vegetation to its former vigorous ſtate. The wheats are very forward, though, in ſome fields, a little *ſmut* is diſcernible, which I attribute to want of care in pickling.

The early ſown barleys are for the moſt part good; but thoſe later ſown are inferior. Oats are cloſe in the ground; but, from the check received in June, will not be bulky. The hay crop is light,

light, and its colour hurt by the rain, although the quality is not much injured. It is now selling from 8d. to 10d. per ſtone from the rick.

Potatoes, this ſeaſon, are much affected by the curl, which muſt leſſen their product conſiderably. The cauſe of the diſeaſe is variouſly accounted for; but, as the ſubject deſerves attention, I ſhould wiſh very much to hear the opinion of ſome of your friends upon it. The drought was much againſt the turnips, and, in many places, the firſt ſowing almoſt totally failed: later ſowings are likely to do better; but, on the whole, it is apprehended they will not be a good crop this ſeaſon.——*23d July.*

Extract of a Letter from Glaſgow, July 23d.

'Our crop was much hurt by the ſevere drought in the beginning of Summer; but the late rains have produced an extraordinary change on the fields. Wheat, we think, is as great a crop as we remember to have ſeen in this part of the country. Barley, at one period, was thought almoſt uſeleſs, but, ſince the rains and the warm weather, has greatly improven. Oats, upon the light lands, were almoſt burnt up, but are now wonderfully revived. Beans and peas are ſhort in the ſtraw, but well podded. Hay is far ſhort of an ordinary crop; but the deficiency will be, in part, made up, by the augmentation of fodder which will now be gained. Potatoes look amazingly well; and, from the great quantity planted, we may expect a ſeaſonable relief from them in a ſhort time.

We have had an extraordinary importation of Indian corn, Indian corn meal, rye, and wheat flour, from America; which have had the effect of keeping our markets lower than in any other part of the kingdom. Our preſent prices are—American wheat, 62s. and 63s. per 240 lib.; Dantzic do. 58s. and 60s. per boll; Britiſh do. 50s. to 60s.; Barley, 40s. to 42s.; oats, 28s. to 38s.; Peas and Beans, 34s. to 42s.; American wheat flour in barrels, 56s. to 64s. per 196 lib.; Rye do. 40s. to 42s per do.; Indian corn meal, 33s. to 34s. per do.; old hay, 1s. 4d. to 1s. 6d. per ſtone, tron; new do. 1s. to 1s. 2d. per do.; beef, 10d. to 1s. per lib. do.'

Obſervations by a Scots Gentleman, who lately made a Tour in England, continued from p. 343.

HAVING, in a former communication, related my obſervations on the ſtate of the preſent crop, in an excurſion to the ſouthward, I ſhall endeavour, in a few words, to deſcribe it, as it appeared to me on my return home by a different route, from the 15th to the 25th of July incluſive, in a tract from the interior of the county of Cardigan by Aberyſtwith, Machyntleth, Dolgelly, Bala, Corwen, Wrexham, and Holt, in Wales; from thence, by Tarporley, in Cheſhire, to Warrington; and then through Lancaſhire, by Manchester,

cheſter, Rochdale, and Colne; and through Yorkſhire, by Skipton, Ripley, Ripon, and Northallerton; and ſo on, by the eaſter poſt road, through Darlington, Durham, Newcaſtle, &c. by Berwick, to Edinburgh; a courſe of about 380 miles.

The wheat and rye (Autumn ſown crops) are good every where; but the Spring corn, barley, oats, and peas, are partly good, partly indifferent, and ſome bad, according as the ſoil was more or leſs able to endure the ſeverity of the drought in the beginning of Summer. The ſame obſervation applies to the paſtures; but the hay crop is good or bad, in proportion to its ſtate of forwardneſs; that which was cut down before the rains in the beginning of July, being very defective; whilſt thoſe fields which were ſtill remaining for the ſcythe, and which is by much the greater proportion, have recovered greatly, and are turning out well. The turnip will all be good, ſo far as depends on the weather; but will vary according to management: not many, at any rate, in the Engliſh part of this route: The beſt were about Ripon, and in broad-caſt, as every where elſe; but much inferior to thoſe in Eaſt Lothian, which are cultivated more judiciouſly in drills. The beſt paſtures were in the Vale of Skipton; ſuperior, indeed, to any I have before or ſince ſeen: the worſt were in the county of Durham, ſouthern part of Northumberland, and eaſtern coaſt of Eaſt Lothian; all owing to the influence of the drought in the early part of the ſeaſon. The beſt tract for good crops of all kinds, was in Northumberland, between Charlton and Haggerſtone; an extent of about 15 miles, where every thing was excellent, particularly barley and peas.

The harveſt does not ſeem to be very forward any where, except about Aberyſtwith, where ſome fields of wheat and barley muſt be cut down by this time. A few fields about Linton, in Eaſt Lothian, will alſo be ready in ten or twelve days; but every where elſe in the above route, the crop is fully as late as about Edinburgh; and it muſt yet be three or four weeks before harveſt is general: In the high country, on the confines of Yorkſhire with Lancaſhire, it muſt be much later, as the corn there is yet hardly come into ear. Potatoes abound in every place; and, notwithſtanding of the *curl*, which affects them all, they have a promiſing appearance, and are alſo very generally begun to be taken up. Between Warrington, and Manchester, many fields of them are entirely cleared, and a new crop planted with potatoes again, or ſown with ſome other crop.

Vicinity of Edinburgh,
July 28th 1801.

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Norfolk Quarterly Report.

The ſoil of Norfolk is ſo various, that it is extremely difficult to give ſuch a clear and correct an account of the crops as could be wiſhed; but, in general, the wheat crop may be ſtated as not exceeding two-thirds of an average one. Some of the very early barleys are good; but the late ſown fields ſuffered exceedingly from the drought, and cannot now be weighty, under the moſt favourable circumſtances. Oats and beans are alſo good; but peas are indifferent. We have had heavy rains of late, which, it is hoped, may help the corn crops, and came very opportunely for the turnips, which are now conſidered to be out of danger. Very little grain at market. Superfine wheat is worth 160s. *per* quarter;—general runs 120s. to 126s. Barley 36s. to 46s.; fine ditto 70s. Oats 32s. to 40s.; ſuperfine 44s. *July 17th.*

Yorkſhire Quarterly Report.

During the laſt two weeks, the weather has proved very unfavourable for the hay crop; little of which hereabouts has been ſecured, though the cutting is conſiderably advanced: much is ſpoiled, and ſpoiling. The produce of graſs is perhaps, on the whole, above an average one: That of red clover very thin and light in general. Flax and rape are good; but the rain is againſt them at preſent:—a circumſtance conducive to the proſperous ſtate of growing ſeeds of all ſorts.

The paſtures have been, and ſtill are in a luxuriant ſtate; but a continuance of the wet weather will ſhortly affect them on the colder ſoils, requiring more ſunbeams than have of late fallen to their lot. It is remarked, that cattle have hitherto fattened and milked on graſs better than uſual, during the Spring and Summer months; yet, without reduction of the price of their products.

The preſent appearance of the crops of grain promiſes abundance: the late rains have already produced a ſenſible improvement in thoſe of beans, oats, &c. which, on ſome ſoils, were hard pinched by the preceding drought. The wheats afford a proſpect of one of the fineſt crops ever reaped in this county; though ſome, of all ſorts, begin to be lodged too early. Theſe unequivocal ſymptoms of future plenty, as in the caſe of graſs products, have at preſent no effect in lowering the price of grain, which ſeems advancing, particularly that of wheat.

The growing potatoes, on the whole, promiſe remarkably well: ſome appeared injured by the Summer froſts, but are now recruited, and

and growing vigorouſly. Great quantities of this uſeful root have been planted; and, if we may judge from the excellent quality of the early ſorts already in uſe, we may reaſonably expect a bountiful ſupply of a good article of its kind. The early ſown turnips had begun to diſappear; but the late rains have made them aſſume the moſt promiſing appearance: and, from the unuſually fine fallowing ſeaſon, and the general excellence of the tillage, a full crop may be almoſt preſumed upon. Some turnips are hoed; but that operation has been much retarded by the rain.

Cattle and ſheep are ſtill dear. Beef and mutton about 8d. *per* lb. Veal 7d. *per* lb. avoirdupois. Good horſes are in great demand; and ſell at advanced prices. Wool is above the higheſt pitch ever known. *July 17th.*

Extract of a Letter from Stafford, July 18.

'Our crop promiſes an abundant return, but I am apprehenſive, that the late heavy rains may do injury upon the low grounds: they have, at leaſt, greatly impeded our hay harveſt, and much of our meadow graſs ſtands a chance of being entirely ſpoiled, if a favourable change does not ſoon take place. Our markets keep high, both for grain and butcher-meat. Beef is 8d. and 9d. *per* lb.; and bacon at the enormous price of 14d. *per* lb. by the whole flitch. Store pigs are prodigiouſly ſcarce, and ſell from one to two guineas. Cheeſe from 77s. to 80s. *per* cwt. My vetches are, this year, exceedingly fine; and, from experience, I can ſay, they are the profitableſt of all crops, being both food and phyſic for any kind of cattle, particularly horſes, who eat them with great avidity. I have ſeveral acres of the Swediſh turnip, which promiſe well. Potatoes are good; and ſuch an extent was never known to be planted with them, as this year, which I hope will make them cheap. I was lately in London, and was highly delighted with the many new agricultural inſtruments, which I ſaw, at the warehouſes of the ingenious mechanics of that Metropolis. Meſſrs Turbat & Tunſtal, Clement's Lane, Temple-bar, have invented a curious portable thraſhing machine, for which a patent is obtained; and I was informed, that a man and a boy, with it, are capable of thraſhing 50 buſhels *per* day. I ordered a machine for hoeing turnips, from Mr Stevenſon, No. 79, Margaret-Street, Cavendiſh-Square, which anſwers ſeveral other purpoſes. The great evil we lye under, in our part of the country, is the obſtinacy of our ſervants, who, from their infancy, imbibe ſo many vulgar notions againſt improvement, that it is impoſſible ſo put theſe new inſtruments into their hands, unleſs you want to have them deſtroyed. The Reverend Mr Cloſe of Norfolk, finding it in vain to attempt accompliſhing his improved plans with the old ſervants, actually employed his bailiff to inſtruct

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fix young men in the uſe of the new inſtruments; for which, he obtained a medal from the Bath Society.'

Extract of a Letter from a Farmer in Wales, July 14.

'Since I wrote you in March, we have, upon the whole, had a continuance of favourable weather; which, I truſt, will be followed with beneficial conſequences. Our early cut hay is a light crop, but was got in good condition; and the ſhowery weather, which we have had for a fortnight paſt, has much improved the late crops, and ſaved both our potatoes and turnips. Corn, of all kinds, is looking well, particularly upon the clay ſoils; and the wheat, which had a fine blooming time, is now beginning to change colour, and ſeems remarkably well filled. There is leſs barley ſown than uſual, as we have a greater breadth of wheat, but it looks very beautiful. Oats are good: ſo are peas and beans; and if good weather continues three weeks longer, we will, to all appearance, have a harveſt of plenty, both to man and beaſt. We have ſtill a great demand for cattle, and every fair is crowded with purchaſers; of courſe, the price is high. Cows and calves are particularly dear; and ſo are ſtore pigs. We have little or no corn of our own at market; but our principal ſupply, during the Summer, has been by importations of barley, at Cardiff and Swanſea, of a very inferior quality, though it ſells at 10s. or 11s. *per* Wincheſter buſhel.'

Northumberland Quarterly Report.

THE months of April and May, being mild and dry, were very favourable for vegetation; and the corn crops on rich land, had once the appearance of being too luxuriant, but the drought continuing through June, has prevented their lodging; and, upon ſandy dry lands, very much injured the crops of both graſs and corn; but a fine rain on the 1ſt July, effectually ſaved the crops on other ſoils. From this period to the 17th July, we had a ſeries of wet weather, with ſcarcely a fair day; by which the hay, that was unluckily cut at the time, is materially damaged: As the laſt three or four days have been very fine, I hope the remainder will be ſaved.

The corn crops are, in general, looking well, particularly the wheat; and if we have a continuance of dry weather, and a good harveſt, I hope this year will prove a year of as great abundance, as the two laſt were of ſcarcity.

The dry weather in May and June, proved very favourable for working the turnip fallows. On many ſoils, the turnip ſeeds did not vegetate, for want of moiſture; but the abundant rain has now brought them all forward; and, if we have a ſucceſſion of warm weather, they have every appearance of being a full crop.

The

The potatoes were much injured by a ſevere froſt on the 13th June, which killed all the tops, and checked their growth conſiderably; they have ſince ſent out numerous freſh ſtems, and are now looking very healthy. This froſt was ſo ſevere, as to kill the leaves on young aſhes. Fruit of all kinds alſo ſuffered. Gooſeberries, in particular, are the worſt crop ever remembered.

The crops of clover hay were very light, and ſold in ſome parts of the county for 5l. a ton. The crops on the old meadows, yet uncut, will be weighty, and probably make up the deficiency of the other.

The prices for both fat and lean ſtock, ſtill continue very high. Beef, 8s. *per* ſtone, ſink. Mutton, 9d. *per* lb., ſink. Long-wooled lambs for keeping, were ſold at Yetholm fair at 21l. *per* ſcore; and Highland lambs, from 10l. to 14l.; which is ſeveral ſhillings a head more than they were ever ſold at before.

Wool has alſo been ſold at very advanced prices; parcels of long wool, which were ſold laſt year for 10d. *per* lb. have been ſold this year for one ſhilling. *July 20th.*

Lincolnſhire Quarterly Report.

The corn crops in this county are, upon the whole, as good as I recollect to have ſeen them for many years; and, as a great breadth of potatoe land was planted, we have reaſon to hope, that a conſiderable reduction will ſoon take place in all our markets, though they ſtill continue very high. Sheep have ſold at extraordinary prices all this ſeaſon: thoſe once clipped, called *ſhearling wedders*, from 60s. to 80s. *per* head, and lamb hogs from 40s. to 60s. The wool market is alſo advanced; the general price being from 28s. to 31s. *per* tod of 28 lb. Horſes have likewiſe ſold high; as alſo, horned cattle, which have been bought by our graziers, for feeding on the marſhes, at exorbitant rates.

That reſpectable gentleman, the Right Honourable Sir Joſeph Banks, Bart., after various obſtacles thrown in the way by the clergy and tythe owners, obtained three acts of Parliament for reclaiming and improving our fens: 1*ſt*, For effectually draining the three *fens*, and adjacent country: 2*d*, For incloſing Wildmore fen, about 11,000 acres: 3*d*, For incloſing the eaſt and weſt fens, about 19,000 acres. When theſe improvements are accompliſhed, the benefits to the individuals, and to the public, muſt be conſiderable.

Some complaints are made, that the wheat and barley crops are injured by the grub-worm, but I do not think the injury general. Since the late rains, our meadows promiſe to yield a full crop of hay. *20th July.*

Extract

Extract of a Letter from London, July 20th.

'In Middlesex. the beans and wheat (the chief crops) are very fine; but, in some places, laid down by the rains. Several fields of the latter will be ready in the course of ten days. Both wheat and barley have a fine appearance in Hertfordshire; as also the turnips. Essex bids equally fair for a great crop; of which a considerable proportion is wheat. The county of Kent is also in a flourishing state; and, in the article of hops, the shew is very favourable.

For three weeks past, we have had frequent showers, which retarded the hay harvest, and advanced the price full 12s. *per* ton. Dry weather seems to be again set in; which will enable the hay farmers to get in their crops. Before the rains arrived, the barley, upon the light soils, was feeling the effects of the drought very severely.

The price of wheat has been upon the rise ever since the end of May, notwithstanding the great importation of foreign wheat, and wheaten flour, from America. Had it not been for the American importations, the city of London would have been scantily supplied with fine flour; as the quantity of English wheat at market was comparatively small, and the greatest part of the foreign was not fit to grind, without a mixture. This day, a larger supply of English wheat has appeared at market than has been produced for some weeks past, which had but a dull sale, and at reduced prices. Oats were also a little lower. Beans, peas, and barley experienced little alteration. Current prices at Marklane—Wheat, foreign, from 105s. to 160s.; Kent and Essex, 164s.; rye, 56s. to 63s.; oats, 28s. to 44s.; barley, 34s. to 65s.; beans, 46s. to 53s.; peas, 53s. to 56s.; all *per* quarter of 8 Winchester bushels. New potatoes sell from 7s. to 8s. *per* cwt.

Smithfield market is well supplied; and vegetables of all kinds are both plentiful and cheap. Retail prices of butcher-meat are—Beef and mutton, 8d. to 9d.; lamb, 9d.; veal, 6d. to 9d.; and pork, 12d. *per* lb. New hay, 5l. *per* load; old do. 6l. 10s. to. 6l. 15s. Wheat straw, 2l. 6s. to 3l. Fine Kent hops, 10l. to 11l. 10s. *per* cwt.'

Extract of a Letter from a Gentleman in the North-West Corner of Northumberland.

'The N. W. corner of Northumberland, from its mountainous and mossy nature, is mostly occupied in the sheep husbandry; and those kept, are of the Cheviot breed. The last Winter and Spring have been remarkably mild; and well grown fleeces, and great crops of lambs are the consequence.

From the great loſſes ſuſtained among the ſheep and lambs in the three preceding years, along the Borders, the ſtock farmers have not been able to caſt above one-third of their uſual quantity; and, owing to the very great demand from Yorkſhire, and the more ſouthern counties, (partly occaſioned by the expected riſe on the price of wool), rough ſheep have advanced in price; and, at Stagſhawbank fair, on the 4th July, were, on an average, one-fourth more money than laſt year; black cattle equally high. Salved wool (what is yet ſold) brings from 1s. to 1s. 4d. *per* pound; but more is expected for the beſt parcels. Wedder lambs, of a good kind, are ſelling from 10s. to 12s. & 13s. *per* head.

The graſs and corn here, and down the banks of the Tyne, to Newcaſtle, look remarkably well; but the potatoes were ſeverely checked, by the froſty nights we had in June: However, they now vegetate afreſh ſtrongly, and promiſe to be a tolerable crop, but will be much later than common; to the great diſappointment of the poor, who had planted large quantities of the early kind, from which they expected the firſt relief from their preſſing wants. The fallows, in this quarter, have wrought very clean, but dried much in the operation, which made a very partial braird of the early ſown turnips: however, where the ſeed was known to be good, and people had patience, the late rains have cauſed (after lying a month in the ground) a fine braird, and the appearance is now very promiſing.'

Extract of a Letter from an Engliſh Gentleman, of great experience in Practical Huſbandry, who viſited Scotland this Summer; dated Birmingham, July 24th.

'I am now got this length homeward, where I will be ſtationary for a few days; and ſhall employ a leiſure hour in communicating to you a few obſervations which occurred during our progreſs.—At Edinburgh, I met with Sir John Sinclair, Baronet, who kindly wiſhed me to take a trip to Caithneſs, or, at leaſt, to the Carſe of Gowrie: And, though I did not intend to extend my tour farther northward, yet, as a ſmall thread will lead us, when our inclinations are in uniſon, I went to Mr W———'s in the Carſe; and did not repent having undertaken the journey. The huſbandry of that diſtrict charmed me; indeed, through Northumberland, and all the way through Scotland, to Perthſhire, I was highly gratified: but there I muſt ſtop; for, from Perth, acroſs the country, to Dumfries, and through the weſtern diſtricts of England, to this place, the general management is very much according to the old ſchool, though there are numerous inſtances of ſuperior practice every where diſcernible. One circumſtance ſtruck me forcibly; that was the *paucity of ſtock*. How is this to be accounted for? Not by the decreaſed

decreaſed quantity of *herbage*, ſurely: Or how can the great ſcarcity of *grain* be ſaid to ariſe from the increaſed quantity of graſs-land?

The crops appeared every where abundant in the diſtricts we paſſed through, but far from being forward. We were often told, 'You will ſee barley cut at the next ſtage.' But it was all deluſion; for, to this place, we have not ſeen a field that will be ready for the ſickle in leſs than ten days, or a fortnight. The oat crop appeared very abundant; yet, at Liverpool, when we were there, grain felt a conſiderable advance. I am informed, that our crops in Dorſetſhire are good, and that turnips and potatoes are excellent. If theſe united circumſtances do not reduce prices, (and, after all, I am inclined to think the reduction will not be equal to many peoples expectations), we muſt look for a cauſe elſewhere. Our growth is not adequate to our conſumption; which has long been my opinion. How is this to be rectified? Pray, let your next communication be on that ſubject; which will oblige,' &c.

Postscript to Scotish Intelligence.

Mid-Lothian Quarterly Report, from April 5th to July 30th, inclusive.

From the long and intenſe drought, which prevailed during the whole months of May and June, there was much reaſon to apprehend, that the crop would not turn out near ſo well as was prognoſticated from the indications of the preceding quarter; for Spring-ſown grain of every deſcription, as well as the paſture and hay fields, were much affected, and ſuffered greatly. Happily for the country, the fears entertained on this ſubject, have been diſſipated. Seaſonable and refreſhing ſhowers, with much warmth, through the greater part of the month of July, have recovered the crop ſo far, as to give room for the moſt ſanguine hope, that *the years wherein we have ſeen evil*, are at an end, and that plenty will again ſmile upon the land. The hay crop only has miſſed of this favourable return in the weather, as moſt of it was cut down before the rains came; and the potatoes, alſo, from the uncommon prevalence of the *curl*, can hardly be expected to amount to an average return: But every other kind of crop has, at preſent, the appearance of being abundant, and can hardly fail to be ſo, but from too much rain, ſhould ſuch an unhappy occurrence take place in the remaining weeks of the ſeaſon. Harveſt, it is ſuppoſed, will be pretty generally begun, in the vicinity of Edinburgh, by the 20th of Auguſt.

Notes

Notes to Correspondents.

A very valuable communication on the folding of ſheep, accompanied with a polite letter from Sir John Sinclair, was unfortunately too late to be inſerted in this Number; but will have that attention paid it in the next, to which the reſpectability of the author, and the importance of the ſubject, ſo juſtly entitle it.

A very ſenſible paper, on the uſe of lime, ſigned *P.* is unavoidably delayed till next Number, for want of room; as are alſo the papers ſigned "*Ruſticus junior*—*B.*—*A. B.*—*A. M.*" and many others, containing much valuable matter; all of which will be duly conſidered, and have every poſſible attention paid them.

An intelligent paper, concerning the *grub worm*, read to the *Holderneſs Agricultural Society*, has been received, and will be noticed in a future Number.

In our next, will be given copious extracts from an Eſſay, tranſmitted to the Board of Agriculture, on "*the beſt means of converting graſs land to tillage, without exhauſting the ſoil, and of returning the ſame to graſs in an improved ſtate, or at leaſt without injury.*" Colonel Fullarton's Pamphlet on that important ſubject, could not be overtaken in this Number, but will be reviewed afterwards.

Reviews of the *Norfolk*, *Suffolk*, and *Mid-Lothian Surveys*, are in hand.

Materials are wanted for completing a Memoir of the celebrated John Cockburn *Eſq. of Ormiſton.* Information relative to the improvements introduced by him, will be gratefully received.

Several *Quarterly Reports* were received too late. It is again requeſted, that the gentlemen, who kindly favour us with intelligence, will tranſmit the ſame, at leaſt ten days before the day of publication.

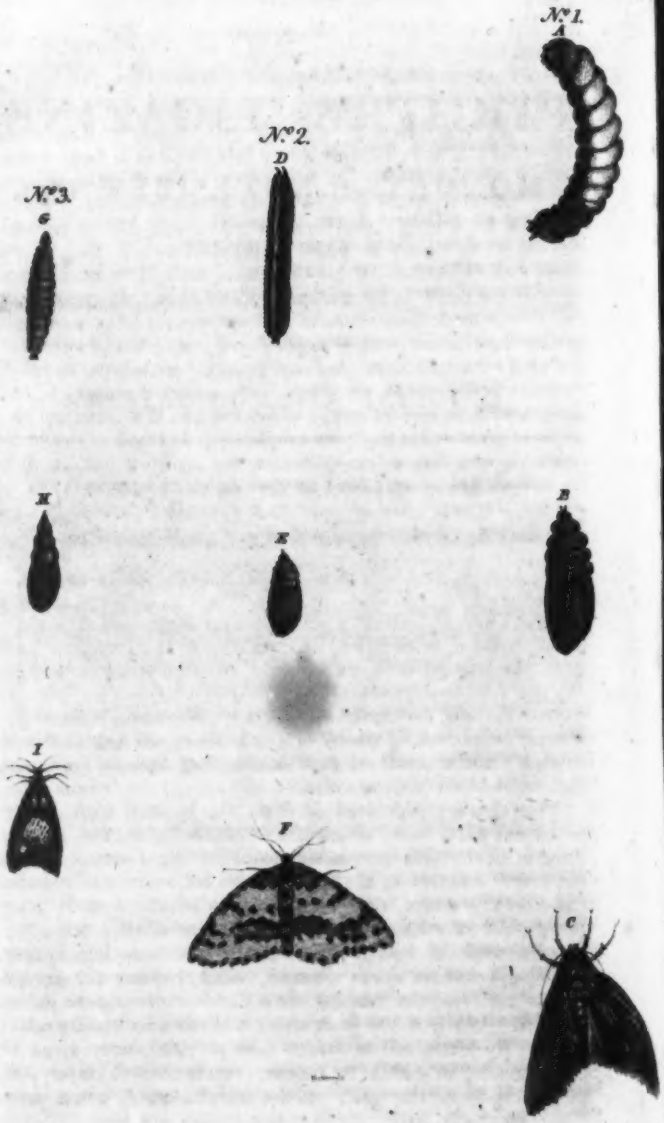
No. VIII. will be publiſhed on Monday, November 2.

Errata in this Number.

Page 262, 26 lines from the bottom, for *latter*, read *letter*.

Page 282, read from the word "*ſuppoſe,*" 16 lines from the top, to the word "*ſtated,*" two lines from the top of page 283, as follows—

Suppoſe, for inſtance, that a crop of oats is taken the firſt year, ſo far no extra expence is incurred, unleſs draining is required; but, during the ſecond year, when a complete Summer fallow and dreſſing of hot lime, will be indiſpenſably neceſſary to quicken and ſtimulate ſuch old fogged lands, the outlay, when added to the rent and labour, will not be leſs than I have ſtated.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